

COMPUTERWORLD

N.Y. sites unfazed by outage

BY ELISABETH HORWITT
CW STAFF

NEW YORK — For New York-area information systems managers, last week's network snafu hammered home the value of not putting all their eggs in one basket.

Having learned from previous network outages to incorporate plenty of diverse routing and redundancy into their communications links, many IS managers said they were prepared when a power outage knocked out an AT&T central office in Manhattan for more than six hours. As a result, most New York-area businesses were able to treat the outage as a nuisance rather than a disaster.

AT&T's central office facility at 33 Thomas St. in Manhattan's financial district lost all power last Tuesday. The outage occurred because operators failed

to respond for several hours to auditory and visual warnings that the facility was on battery backup power rather than diesel-generated internal power, company officials said. AT&T is still

investigating why operators did not obey corporate procedures for checking the alarms.

While the time of the outage minimized disruptions to

Continued on page 4

Hours of need

AT&T has taken heat for not heeding warnings that its busiest switching station was about to lose power last Tuesday



10 a.m. AT&T power equipment fails, forcing the Manhattan switching station onto battery backup.



4:30 p.m. Company officials realize station is running only on batteries.



4:50 p.m. Batteries fail, shutting down hub's 2.1 million call-per-hour capacity.



8:30 p.m. Switching station working at two-thirds capacity.



11:50 p.m. Full service restored.



Pilot sums up feelings of passengers stranded by the outage

CW Chart: Janell Genovese

Open systems rivals move to link standards

BY JOANIE M. WEXLER
CW STAFF

BOSTON — The path to plug-and-play computing nirvana became less cluttered last week when the Open Software Foundation and Unix International took steps to bury the hatchet and define open systems technologies that work together.

The two consortia made separate, unexpected announcements that their divergent distributed computing environments will be interoperable. They also announced technology selections for their distributed computing and management environments.

The upshot is that users working on various vendors' computers could have one system for developing, executing

and managing applications in 1993. The caveat is that users must depend on network equipment vendors, independent software vendors and themselves to write applications that comply with the OSF's Distributed Computing Environment and Unix International's Atlas application programming interfaces.

The DCE/Atlas interoperability announcement falls a step short of the complete unification of the two groups that the industry would like, but "it's better than the two not being able to plug in," said Bill Conley, manager of information technology services at Loral Aerospace Corp. in Newport Beach, Calif.

According to Unix International, Atlas will be a superset of the OSF's DCE. This means

Continued on page 96

CA calms Cullinet users but faces DB2 stress test

BY JOHANNA AMBROSIO
CW STAFF

GARDEN CITY, N.Y. — Two rocky years after acquiring Cullinet Software, Inc., Computer Associates International, Inc. has put to rest the fears of a skittish Cullinet customer base. Now it faces an equally daunting task in trying to slow the advance of IBM's DB2.

When the deal was announced, some users worried that CA's reputation for aggressive cost-cutting would mean bad news for Cullinet's flagship IDMS database management system. "We were concerned that the product line would not continue to go forward," said the vice president of database administration at a Midwestern

Continued on page 6

IBM wins one, fumbles another

ES/9000 has great week as Sears orders 11 units, American Express praises performance

BY ROSEMARY HAMILTON
CW STAFF

There must have been a few smiles among IBM's mainframe executives last week.

First Sears, Roebuck and Co. went for IBM's new Enterprise System/9000 Model 900 mainframe in a big way, announcing an order for 11 of the \$22.8 million units. Then American Express Co., another key IBM customer, said its Model 900 is

achieving spectacular performance.

The Sears order is a big victory for IBM, not only in the amount of cash it will generate but also in the statement it makes. It supports what IBM has been insisting: Mainframes will continue to play an essential role in enterprisewide computing.

The Model 900, which clocks in at more than 200 million instructions per second, is the top dog in the IBM ES/9000 line.

Announced earlier this month, the system became generally available last week.

While the computing requirements for these two customers are vastly different, both are bringing in Model 900s to consolidate work loads on fewer but bigger mainframes. These customers said one Model 900 will run the jobs it once took at least two 3090 600-type processors to handle. This not only frees up data center space but also allows

Continued on page 10

Chip fault puts low-end RS/6000 debut on ice

BY MARYFRAN JOHNSON
CW STAFF

A chip design problem has derailed IBM's intended October announcement of the long-awaited low-end RISC System/6000, delaying the debut of its lowest priced Unix workstation until early next year, the company confirmed last week.

Analysts said they expect the new model to be priced as low as \$6,000, although fully configured systems are likely to strike closer to the \$10,000 mark. With no workstation offering below \$10,000, IBM officials have

long been missing a major market segment dominated by Sun Microsystems, Inc.

Users must spend at least \$14,000 now for a base system RS/6000 Model 320.

An IBM spokeswoman said the delay was caused by a glitch in the circuitry design of the low-end model's new I/O chip, which passes data from the microprocessor to the Micro Channel Architecture bus. Although IBM has since fixed the problem, there will be no volume shipments of the machine until spring 1992, the spokeswoman

Continued on page 95

INSIDE

In Depth — Think modular software development and delivery. Page 69.

Multiprocessing PCs gain ground in the price/performance race. Page 96.

Wang on Windows: A new word processing package is scheduled to ship next month. Page 6.

Plug-compatible mainframe makers respond to IBM. Page 10.

Reversal of fortunes

CA-IDMS has lost ground steadily over a four-year period during which IBM's DB2 has passed it in market share

Market share
U.S. IBM/PC mainframe database management

| | Jan. '87 | Jan. '88 | Jan. '89 | Jan. '90 | Jan. '91 | July '91 |
|---------|----------|----------|----------|----------|----------|----------|
| CA-IDMS | 15% | 14% | 13% | 12% | 10% | 10% |
| DB2 | 4% | 7% | 9% | 11% | 14% | 15% |

Source: Computer Intelligence/Infocorp

CW Chart: Michael Siggins

IN THIS ISSUE

NEWS

4 All of the technical back-ups in the world won't help when human error causes a problem, as **AT&T** discovered last week.

6 Beta-test users give a thumbs-up to **Wang's** Up-word processor.

8 **Parallan** moves against minicomputer makers with its latest line.

10 More power, less price for **Amdahl** mainframes.

12 The **Tele-Communications Association** conference spotlights ultra-high-speed networking.

12 Chip off a new block: **Chips and Technologies** releases its first micro-processor.

16 **Commerce Bancshares** is banking on outsourcing, an unusual route for a healthy financial institution.

95 New data communications firm **Syncordia** has a global scope.

96 **SMP** is moving on down to PCs at **AST Research** and other firms.

97 While **Unix International** and the **OSF** wrestle over open systems turf, users are content to wait until the dust settles.

97 **IBM's** OS/2 Release 2.0 is sailing onto the horizon, but some features, including Windows support, may have missed the boat.

Quotable

"We're concentrating on tactical decisions about products that are available and that work."

CHIP STEINMETZ
AMERICAN AIRLINES

On the open systems wars.
See story page 97.

SYSTEMS & SOFTWARE

27 More and more database firms are signing up to play on **IBM's** DRDA team.

PCs & WORKSTATIONS

35 **Ashton-Tate** users are getting antsy over product delays.

43 Technology Analysis: Reviewers found **Apple's** System 7.0 an improvement over previous versions. Particularly noteworthy are memory, networking and applications-linking features.

NETWORKING

49 The embryonic U.S. National Research and Education Network may find siblings in Europe and Japan, where plans are under way to spawn similar high-speed data networks.

MANAGER'S JOURNAL

61 The CIO post at auto insurer **Progressive** is the new vehicle for IS veteran Allan Ditchfield, who is revving up the firm for a complete systems overhaul.

COMPUTER INDUSTRY

75 It looks as if **Novell** will be the first billion-dollar baby in the PC networking industry.

EXECUTIVE REPORT

65 Successful IS chiefs have more than just good ideas: They know how to sell their ideas to upper management.

IN DEPTH

69 Developing and delivering applications in pieces speeds the development process and enhances user and IS productivity. By W. Burry Foss.

DEPARTMENTS

- 8, 95** News Shorts
- 20** Advanced Technology
- 24** Editorial
- 64** Calendar
- 80, 81** Computer Careers
- 89** Marketplace
- 94** Stocks
- 98** Inside Lines

The 5th Wave



"I GUESS THERE'S A 'USERS GROUP' FOR JUST ABOUT EVERYONE THESE DAYS."

EXECUTIVE BRIEFING

■ **The Open Software Foundation and Unix International**, the industry's rival open systems groups, took a step last week to curb their competitiveness and give users a more standard approach to managing their computing environments. The groups announced that the OSF's Distributed Computing Environment and Unix International's Atlas will be interoperable. Ideally, users could have one system to manage their environments by 1993. **Page 1.**

■ **Software productivity is in a sorry state.** The reason? IS departments handle development as they always have, building applications in a single development push. Applications should be developed and delivered in a piecemeal fashion, offering functionality to users early and often. This approach can reportedly cut development costs from 20% to 50%. **Page 69.**

■ **IS professionals say moving to an outsourcing vendor isn't so bad:** There are broader career prospects, more thorough training and increased management responsibilities. **Page 80.**

■ **The folks at IBM's outsourcing division would probably agree.** Its Integrated Systems Solution Corp. recently signed three outsourcing deals, including one with Commerce Bancshares. The \$6.4 billion Commerce teamed up with IBM not because it desperately wants to off-load computing costs but because it wants to better leverage IBM technology. **Page 16.**

■ **Allan Ditchfield, former IS chief at MCI Communications,** settles in at Progressive, an auto insurance firm. He says the new post offers him the chance to build a new IS architecture. **Page 61.**

■ **Amdahl cut prices on high-end mainframes** and boosted their performance in answer to the huge IBM mainframe announcement earlier this month. **Page 10.**

■ **IBM's latest OS/2 should ship at about Christmastime.** Sources, however, say it may not have all the features IBM promised. Meanwhile, IBM plans to push the operating system into the mainstream with better pricing and expanded distribution. **Page 97.**

■ **Choosing a value-added reseller and understanding the particular "value added"** each VAR brings to a project is not easy. One problem: Al-

most every kind of firm calls itself a VAR. **Page 89.**

■ **Sears makes IBM's day** by announcing it will install 11 ES/9000 Model 900s, the company's top-of-the-line mainframe, and American Express says IBM's Model 900 is a welcome addition to its IS operation. **Page 1.**

■ **Computer Associates has proved it isn't the big bad wolf** that some customers of the former Cullinet Software had feared it would be when CA acquired their vendor two years ago. But now CA must work to keep this customer base of 3,000 from moving to IBM's DB2. **Page 1.**

■ **Europe and Japan may soon catch up to the U.S.** in the development of high-speed networks for research and education, the U.S. General Accounting Office said. The GAO said the two are paying close attention to the emerging National Research and Education Network, which won Senate approval earlier this month. **Page 49.**

■ **Wang plans to ship a Windows-based word processing package** next month, and some initial users are impressed with its capabilities. **Page 6.**

■ **On site this week:** The Beacon Cos.' IS staff provides the real estate firm with computer services while moonlighting as an AS/400 consulting firm. **Page 29.** Oxford University Press, publisher of the Oxford English Dictionary, relies on radio-frequency devices to network its warehouse. **Page 49.**

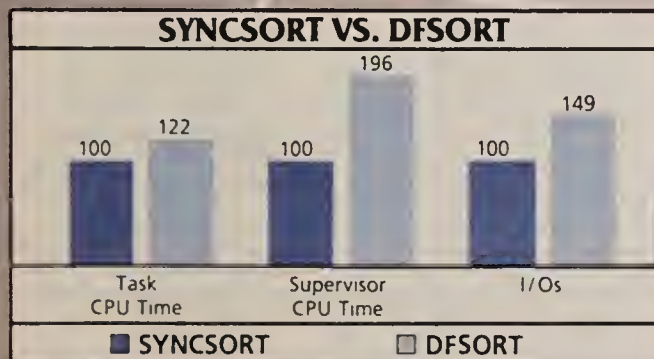
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No safety net for human error

BY ELISABETH HORWITT
CW STAFF

Last week's communications crisis puts added pressure on AT&T to upgrade the reliability of its nationwide communications grid. However, there remains some question as to how the carrier can safeguard against a problem that was largely the result of human error.

AT&T said it had already allocated hundreds of millions of dollars prior to the outage for upgrading its power and backup systems. In addition, the company is in the process of implementing intelligent switching and network management technology that would allow the network to repair itself in real time,

according to Joseph Nacchio, vice president of business communications services.

However, self-healing technologies would not have helped in last week's crisis, which was the result of human, not system, error, Nacchio pointed out.

Indeed, the fact that the entire facility and not just the switch went down during the power failure made it impossible for AT&T to reroute traffic originating from or terminating at that central office, an AT&T spokeswoman said.

Traffic slated to pass through the central office was successfully rerouted once AT&T's network operating center in Bedminster, N.J., became aware of the problem, the company said.

The week before the outage, Federal Communications Commission Chairman Alfred E. Sikes hosted a closed meeting of carriers, equipment vendors and customers to discuss how to improve carrier reliability.

Hard to regulate

However, problems such as last week's outage that are caused by human misjudgment or "low-tech systems [are] less easy for the commission to get at," FCC spokesman Jim Spurlock said.

Indeed, it is hard for any business to properly safeguard against human error, particularly in regard to systems such as uninterruptible power supplies, which almost always work, said Kenneth Brill, president of Com-

puter Site Engineering, Inc. in Danvers, Mass. The problem that carriers such as AT&T share with the military and nuclear reactor sites is "how to ensure that people act the right way when a crisis occurs, when crises are so rare and there are so many false alarms," he added.

The 1989 fire at Illinois Bell's Hinsdale, Ill.-based central office resembled the AT&T power outage in that "alarms sounded, but people didn't do the right things," Brill said.

One of the more serious effects of the outage — the interruption of regional traffic controller communications — will be taken care of as early as next month, Nacchio said. Prior to the outage, AT&T began working with the Federal Aviation Administration to route air traffic control circuits through AT&T offices and routes, he added.

Outage

FROM PAGE 1

business communications, what really made the difference was the extent to which New York-area businesses had built redundancy and diversity into their network, those interviewed for this story said.

Because all interairport traffic controller communications went through the downed AT&T office, regional airport operations came to a standstill.

Metropolitan Life Insurance Co.; General Electric Co.; Bear, Stearns & Co.; and American Express Co. all reported that they were able to minimize damage by switching their circuits automatically to backup lines within minutes.

Ironically, GE was better prepared for last week's disaster because it took such a direct hit during an earlier AT&T disaster, when a fiber-optic cable between New York and Newark, N.J., was severed last January, said Stan Welland, manager of corporate telecommunications. At the time of the earlier outage, he explained, "we were unaware of how much traffic we had on that single fiber bundle and could not reroute" to backup carriers such as MCI Communications Corp.

Cooperative efforts

In the aftermath of the January disaster, GE worked with AT&T to ensure that all the manufacturer's communications circuits travel via diverse "routes, manholes and rights of way," Welland said. As a result, GE was able to bypass last week's outage quickly and get most of its data networking services in the tri-state area back up within 30 minutes, Welland said.

Met Life lost 12 T1 lines and did not get them all restored until 11 p.m., according to Steve Bortnyk, the insurance firm's

head of network management.

However, the effect on users was slight because redundant circuits quickly took up the burden, he added. A few IBM Systems Network Architecture sessions were interrupted, particularly on the West Coast, but no files were lost, Bortnyk said.

In order to ensure that its lines go over diverse routes, Bear, Stearns re-engineered its network once every two months, according to Jeff Marshall, the company's managing director of communications.

New York Clearing House Association took a few extra hours to settle the accounts of member New York banks, said John Lee, the company's president. While the association does not use AT&T, it settles balances after business hours via the Federal Reserve Wire, which does use the carrier, Lee explained.

Several major investment companies "were dramatically affected and lost a high proportion of their long-haul cables," said Mario Nigro, senior vice president of operations at Securities Industry Automation Corp. (SIAC). He declined to name the companies. While the stock market had closed by then, it took SIAC an extra two hours to collect the batch transfers of the day's stock transactions from member firms, he added.

SIAC also lost the AT&T line it uses to send New York option transactions to the Chicago Board of Exchange Options after hours, Nigro said. Instead, SIAC had to send the tapes from the Chicago Board's New York office.

Brief interruptions to overseas communications were reported by GE, Swiss Bank Corp. and U.S. Sprint Communications Co., all of which use AT&T's trans-atlantic cable circuits to

communicate with Europe.

All of the users contacted said they had no plans to move off AT&T lines as a result of this newest outage — the third in less than two years.



AP/Wide World Photos
Passengers and pilots were forced to wait in airports after AT&T reported a power supply problem in a Manhattan long-distance switching office

Not wasting time

WASHINGTON, D.C. — The Federal Communications Commission last week proposed a ruling that would require carriers to report network outages within 90 minutes after the outages start.

At the present time, such reporting is voluntary. As a result, the government has no systematic way of becoming informed about significant service disruptions or "of determining whether particular kinds of technology or equipment are threatening service reliability," the FCC said in a prepared statement.

The FCC has found from investigations that carrier reporting of network failures "was incomplete and very slow in happening," said FCC spokesman Jim Spurlock. In some cases, small incidents that went unreported might have been the precursors to major outages, he added.

The proposal is the result of a closed meeting the FCC held two weeks ago for carriers, equipment vendors and users. The purpose of the meeting was to devise proposals for improving the reliability of public network services.

ELISABETH HORWITT

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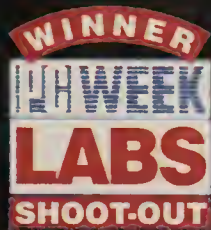
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Wang moves onward, Upword

Windows-based word processing package meets approval of beta testers

BY SALLY CUSACK
CW STAFF

LOWELL, Mass. — Wang Laboratories, Inc. will enter the shrink-wrapped software business next month, unveiling a Windows-based word processor that beta-test users said has impressive document management capabilities.

The initial version of Upword was released quietly last spring to a handful of Wang's largest customers. The vendor said the product will be marketed in

stand-alone and networked versions by an as-yet-to-be-announced third party.

User reaction to the product was enthusiastic. Financial Security Assurance, Inc. in New York, a subsidiary of US West, has been using it in an enterprise-wide client/server environment since last June.

According to Peter Forbes Pollack, managing director at Financial Security, Upword transparently connects to a Wang WP Plus package on a Wang VS 10000 at its headquarters. This

is done with a VS Connect package, which provides file-transfer and client/server capabilities to allow users to edit Wang WP Plus documents in either the VS or the personal computer environment.

Financial Security is running Upword at several branch offices on a Banyan Systems, Inc. Virtual Networking Software, or Vines, network on Intel Corp. 80386-based machines.

Pollack cited the software's what-you-see-is-what-you-get preview capabilities, intelligent

repagination and foreign dictionary support as useful features. The package also provides a separate data architecture that allows the vendor to extend Dynamic Data Exchange functionality to non-Windows applications.

Beta-test users of the upcoming release said Upword enhancements include ribbon-strip icons, support for up to 16 snaking columns and a table editor.

Victor Crain, director of market research at Wang, said users of Wang's older word processing products can go in and out of Upword via an elaborate set of filtering products Wang has created. "The installed base has a directional path with this if they want it," he said. The conversion

tools are reportedly built directly into the product.

Mary Conti Loffredo, a senior analyst at International Data Corp. in Framingham, Mass., said Upword's real strength lies in its document management capabilities in a work-group environment.

In a recent letter to customers, Michael Mee, Wang's chief financial officer, said Upword has been placed under the auspices of Wang Ventures, a newly created department within the firm developed to solicit outside resources and marketing partners.

According to the memo, Upword will ship Oct. 30. Sources said they expect the product will be priced at approximately \$495.

CA calms

FROM PAGE 1

insurance company, who asked not to be identified.

However, users contacted recently said CA has continued to enhance and support Cullinet products. "In most instances, the [service and support] people I know and respect are still there," said James Bradshaw, the Administrative Programming Services director of database administration at Clemson University in Clemson, S.C.

Other users said CA essentially rescued a product line that would have died out had Cullinet gone out of business.

Still, some users said they have difficulties locating the appropriate technical-support people. Other users reported that turnover in local sales offices has created confusion.

James Dudciak, vice president of operations services at Cleveland-based Brush Wellman, Inc., said, "The top management of CA has a reasonably well defined plan for achieving



Seth Resnick

"I DON'T THINK I did anything wrong by selling to CA. It was a case of having to find a home."

JOHN J. CULLINANE
CULLINET

their goals. Unfortunately, that has not been very well communicated to the sales organization."

The bigger threat to CA-IDMS may be the IBM freight train. "DB2 has captured the market," said Howard Fosdick, an independent consultant in Vil-

la Park, Ill. (see chart page 1).

CA's CA-IDMS user base of 3,000 mainframe customers falls into three camps: those who said they are committed to CA-IDMS for the foreseeable future; those who are running both DB2 and CA-IDMS and are doing new development in both systems; and those who have committed to DB2 for most new development but are still running applications under CA-IDMS.

George Emmanuel, chairman of the Information Users Association, a CA user group for CA-IDMS and Datacom customers, said that his employer, Hughes Aircraft Co., still uses CA-IDMS for virtually all applications but that Hughes has committed to DB2 for future development.

Emmanuel, information systems program manager at Hughes' Training & Support Systems Group in Long Beach, Calif., said he is satisfied with CA-IDMS, but business conditions dictate that the firm standardize on one database. "At the top management level, the philosophy is that many is bad and one is good," he said.

CA is responding to what CA Vice President Dominique Laborde characterized as "IBM pressure on the IS community that DB2 is the foundation for the future." CA's strategy is to make its CA-IDMS and Datacom systems plug-compatible with



"I'D DO [the Cullinet deal] again in a heartbeat."

CHARLES WANG
CULLINET

DB2 so that users can opt for Systemview, AD/Cycle and DB2 applications without having to install DB2 itself. This transparency feature is slated to be available under CA-IDMS by early next year and for Datacom by later this year.

Laborde said market share figures may be misleading because "even though DB2 is gaining market share, CA-IDMS and Datacom are still running the business. DB2 is not."

Internal CA numbers show that less than 5% of the CA-IDMS worldwide installed base plans to convert to DB2 in the near future, he said.

While observers applauded CA's attempt to be a true alternative to IBM, most said they believe it to be a losing battle. "For CA to compete on the basis of technical superiority of the DBMS is like competing on the basis of an operating system when all the customer wants are applications," Fosdick said.

Oldies but goodies

CA's main development focus is on IDMS, but other products from the old Cullinet product line are also getting attention.

Highlights include the following:

- IDMS 12.0, currently in beta testing and scheduled for general availability in October.

- This will be CA's first major new version of the mainframe product since its acquisition. Key features include full SQL compatibility and enhanced support for multiprocessing.

- The March 1990 acquisition of DBMS, Inc. in Lisle, Ill., which added some 40 tools to manage, control, tune and monitor IDMS.

- A database management system for Digital Equipment Corp. VAX computers and Unix systems, both based on former Cullinet products and slated to ship by early 1992.

CA also plans VAX and Unix versions of IDMS with full SQL compatibility.

- A code generator and applications development system for the VAX called DB:Generator; Release 2.0 should be available by the end of the year.

- Software to develop production-oriented expert systems for the VAX and embed them into Cobol code.

Since the acquisition, CA has worked on the performance aspects of this product. DB:Expert is now in beta testing at four customer sites.

JOHANNA AMBROSIO

CA hot on development trail

Computer Associates recognizes that it needs to beef up its arsenal of applications development tools, said Dominique Laborde, a CA vice president. So it plans to announce a series of products in that arena on Oct. 7.

To be included in the announcements, Laborde said, are the following:

- A mainframe-based computer-aided software engineering (CASE) tool, acquired from a company Laborde refused to identify for the time being, which will be available "immediately" and will work with CA-IDMS and Datacom.

- Availability dates for Caselink, an interface layer announced last year that links CA products to leading third-party tools such as Excelerator.

- A front-end tool based on Microsoft Corp.'s Windows that CA will deliver by mid-1992.

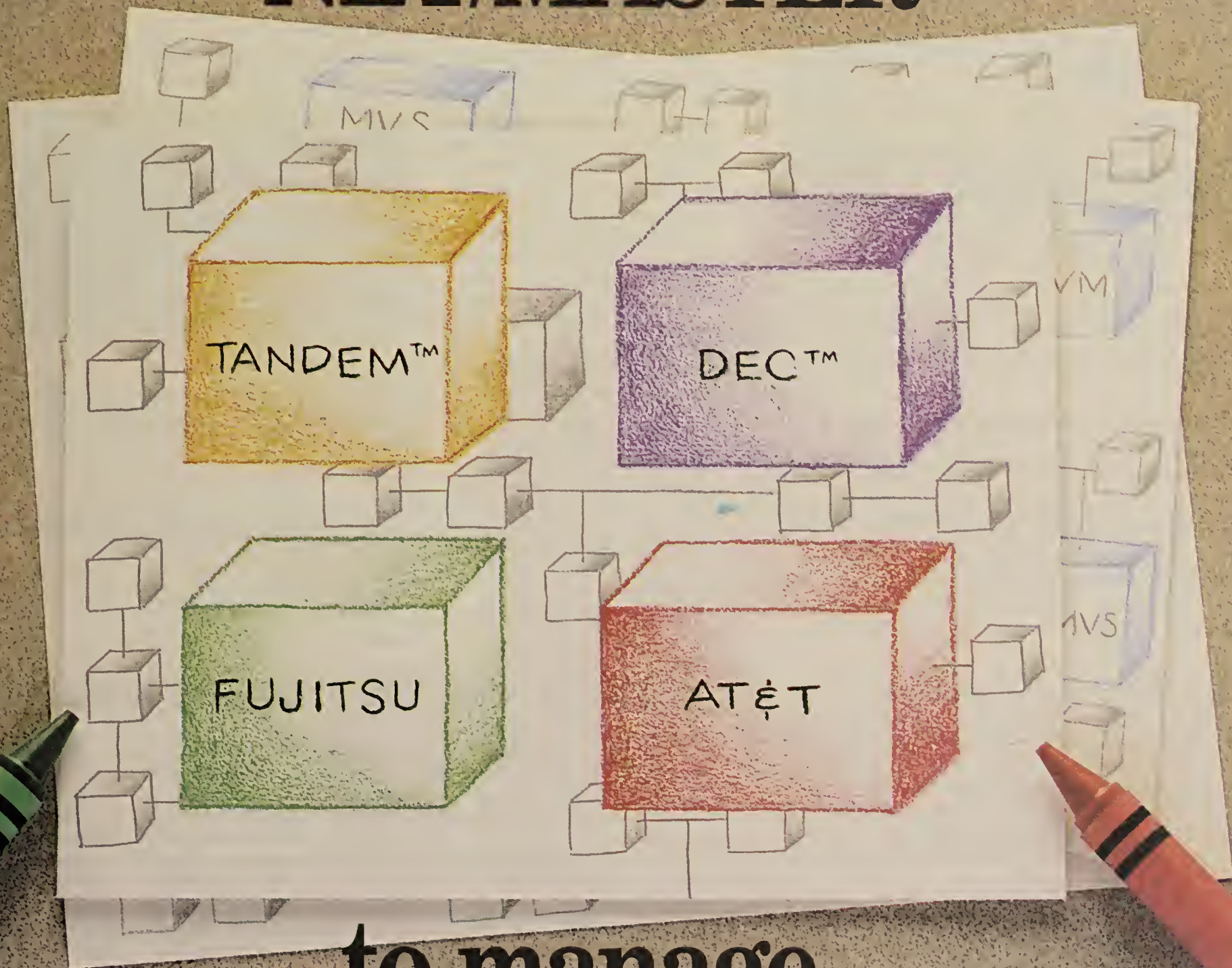
"We've been investigating different technologies for about a year," Laborde said. "CASE has been evolving from single-user, character-based to repository-based, graphical user inter-

face-based, team and LAN-based. It was important for us to be aware of that and position ourselves toward a new generation of CASE products instead of just trying to fill in the gap with an old-fashioned approach."

Work is also continuing apace on CA's repository services layer of its CA '90s architecture, Laborde said. CA said it will build up its existing data dictionaries into repositories that can use the tools and services of IBM's Repository Manager/MVS and Digital Equipment Corp.'s Common Data Dictionary. The strategy here is one of transparent emulation — customers will be able to take advantage of IBM and DEC architectures with CA products.

"We don't have a delivery date, and the reason for that is that we're waiting for Repository Manager to mature," Laborde said. "Even AD/Cycle partners are not delivering products based on Repository Manager, so it would be strange for us to come up with Repository Manager emulation when nobody else has it yet."

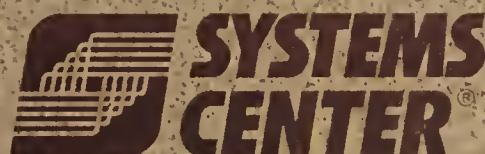
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NEWS SHORTS

Unisys to top off high end

Unisys Corp. today is expected to announce a high-end mainframe targeting on-line transaction processing applications. The 2200/900 becomes the top of Unisys' 2200 line, offering throughput of up to 5,000 transactions per second, according to Unisys. The system can be configured with up to eight processors, an increase of the maximum six processors in the 2200/600 family. Sources said the 2200/900 will ship in the fourth quarter. Unisys will also unveil a new version of its Extended Processing Architecture.

Bell Atlantic extends IBM support

Bell Atlantic Business Systems Services is expanding its support for IBM mainframe sites with the introduction of a service that claims to deliver "hard-to-find" answers to technical questions. The Remote Premium Support Representative service offers toll-free telephone support by Bell Atlantic engineers with experience in mainframe environments. Support is provided for the MVS, VSE and VM operating systems, network products such as VTAM and other IBM software products such as SQL/DS, PR/SM, CICS and Professional Office System.

Businesses challenge VDT law

Two small businesses have filed a lawsuit seeking to overturn San Francisco's strict VDT ordinance. In the suit, Zack Electronics, Inc. and Data Processing and Accounting Services called the ordinance unconstitutional, claiming it is preempted by the California Occupational Safety and Health Act. Michael LaPorte, president and chief executive officer of Zack, said implementing the ordinance would initially cost the 60-employee company between \$40,000 and \$50,000 and thereby interfere with its ability to compete.

Sun multiprocessor to debut

Expanding its hardware offerings to symmetric multiprocessing, Sun Microsystems, Inc. next week will announce a server using two or more processors. However, operating system software needed to run the machine efficiently will not be ready until mid-1992, when Sun releases Solaris 2.0. Two competitors, Solbourne Computer, Inc. and ICL, have had multiprocessing systems based on Sun's hardware architecture for several years.

Panel urges open CRS

A 15-member committee of the independent Transportation Research Board has urged stronger regulation of the airline industry's computerized reservation systems to improve competition. The Washington, D.C.-based panel said the federal government should ensure that travel agents have access to multiple reservation systems and should ban restrictive leases that prevent travel agents from switching among the systems [CW, April 1]. The U.S. Department of Transportation is expected to issue its final ruling on the matter by Nov. 30.

Adobe users unite

The Adobe Technology Exchange got the seal of approval from Adobe Systems, Inc. last week. The international user group was created as a forum for exchange of information and ideas about Adobe products. Although endorsed by the Mountain View, Calif.-based company, Adobe will maintain an arm's-length relationship with the exchange, which will be managed by Info-Catalysts, Inc. in Santa Clara, Calif. Branch offices are slated for Boston, Chicago, Dallas, Los Angeles, Philadelphia, the San Francisco area, Seattle and Washington, D.C.

Low-end Netware package out

Novell, Inc. last week announced its smallest packaging for Netware 3.11, a 10-user license for the network operating system. Aimed at remote user sites, the package supports all features and Netware loadable modules available to larger licenses. It is expected to ship next month for \$2,495.

More news shorts on page 95

Parallan superservers invade mini territory

BY MICHAEL FITZGERALD
CW STAFF

MOUNTAIN VIEW, Calif. — Parallan Computer, Inc., a 3-year-old maker of high-performance file servers, last week announced a new line of products based on single and dual Intel Corp. microprocessors. The products offer high-level disk storage and will support as much as 128M bytes of main memory running under OS/2.

The architecture is fault-tolerant and based on dual-Micro Channel Architecture buses, with Level 5 redundant array of inexpensive disks (RAID) technology providing data protection. A Parallan-developed memory technique called Reserved Memory Management lets the box go beyond OS/2's 16M-byte limit on random-access memory.

In addition, Parallan's new RAID technology will work with the company's Maximum Availability and Support Subsystem, a combined hardware/software system monitor.

George Roukas, director of

systems at a financial services company, uses a 290 Series I machine, which replaced a Compaq Computer Corp. Systempro.

More choices

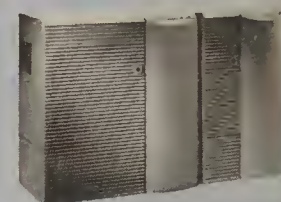
Although Roukas has no plans to upgrade to the Series II immediately,

he said it reinforces his choice. "We just took it for granted that we were going to have to swap out our file servers every two years or so. Now, we think that when we run out of room, we don't have to replace the box."

Parallan said it competes with minicomputers, rather than file servers. Analysts agreed, saying the products work as application servers, a traditional minicomputer role, rather than as file servers.

Superserver

Parallan's Server 290 Series II is oriented toward transaction-processing applications



Parallan Server 290 Series II family

| Model | CPUs | Memory | Number of SCSI disk channels | RAID disk storage | Price |
|-------|-----------------------------|------------|------------------------------|-------------------|-----------|
| 15 | One 33-MHz I486 | 8M bytes | Two | 426M bytes | \$24,900 |
| 25 | One 50-MHz I486 | 16M bytes | Two | 852M bytes | \$37,350 |
| 35 | One 33-MHz, one 50-MHz I486 | 24M bytes | Two | 1.7G bytes | \$57,650 |
| 45 | One 33-MHz, one 50-MHz I486 | 64M bytes | Four | 3.4G bytes | \$87,800 |
| 55 | Two 50-MHz I486s | 96M bytes | Four | 9.6G bytes | \$145,880 |
| 65 | Two 50-MHz I486s | 128M bytes | Four | 19.2G bytes | \$234,510 |

CW Chart: Janell Genovese

Silicon seeks 3-D standard status for Iris

BY JEAN S. BOZMAN
CW STAFF

SAN FRANCISCO — Silicon Graphics, Inc. last week took a stab at making its Iris Graphics Library an industry standard for Unix workstations and MS-DOS personal computers. The firm, which had previously licensed its "library" of geometric shapes and animation functions only to IBM and Microsoft Corp., offered the software to all comers.

As early as late next year, users could see the first Iris GL-based applications coming out on a variety of hardware platforms, allowing applications designers to move two-dimensional applications to three-dimensional platforms. The Silicon Graphics library would compete with an older graphic library standard, the Programmer's Hierarchical Interactive Graphics Standard.

A committee of Iris GL distribution partners, including Sili-

con Graphics, Compaq Computer Corp., Digital Equipment Corp., Intel Corp. and Microsoft will oversee the licensing and distribution of the Iris GL software source code.

Silicon Graphics Chief Executive Officer Ed McCracken said the Iris GL announcement would reach beyond the Advanced Computing Environment program. "Our objective here is to make the IGL available for us on all hardware platforms," he said.

Sun multiprocessor set, but software lags

BY J. A. SAVAGE
CW STAFF

SANTA CLARA, Calif. — Sun Microsystems, Inc. is ready to introduce its long-expected multiprocessing system next Monday, but analysts say it will be hampered by the lack of a multiprocessing operating system until the middle of next year.

The system, code-named Galaxy, will be based on Sun's scalable processor architecture (Sparc), will have up to four processors and will break the 100 million instructions per second (MIPS) barrier, according to analyst David Wu at S. G. Warburg Group in New York. However, the operating system software will not yet allow the processors to run symmetrically, so users

will not get the additional advantage of spreading applications across several processors.

A symmetrical multiprocessing version of Sun's Unix operating system — dubbed Solaris 2.0 and based on Unix Systems Laboratories System V.4, which was introduced earlier this month — will not be available until mid-1992. Its current operating system, Solaris 1.0, does not allow CPUs to take full advantage of multiprocessing, according to Bill Larson, vice president of marketing at Sunsoft, Inc., Sun's software subsidiary. Sun representatives would not comment on the introduction.

Jeffrey Canin, an analyst at Montgomery Securities in San Francisco, said, "It's a late-life kicker for an old product line, the

Models 470 and 490 servers."

Galaxy's reported speed did not impress analysts, either. Andrew Allison, editor of the "RISC Management Newsletter" in Los Altos, Calif., said, "Other uniprocessors, like those from IBM and Hewlett-Packard Co., should be able to outrun a dual-processor Sun system."

A Sun spokeswoman disputed analysts' claims that Galaxy will use the same processors currently installed in the company's Sparcstation 2, which are rated at 28.5 MIPS. However, she did not contest the claim that the new CPUs would be about the same power as those chips. The next generation of Sparc processors should run at about 75 MIPS, according to analysts and sources at Sun.

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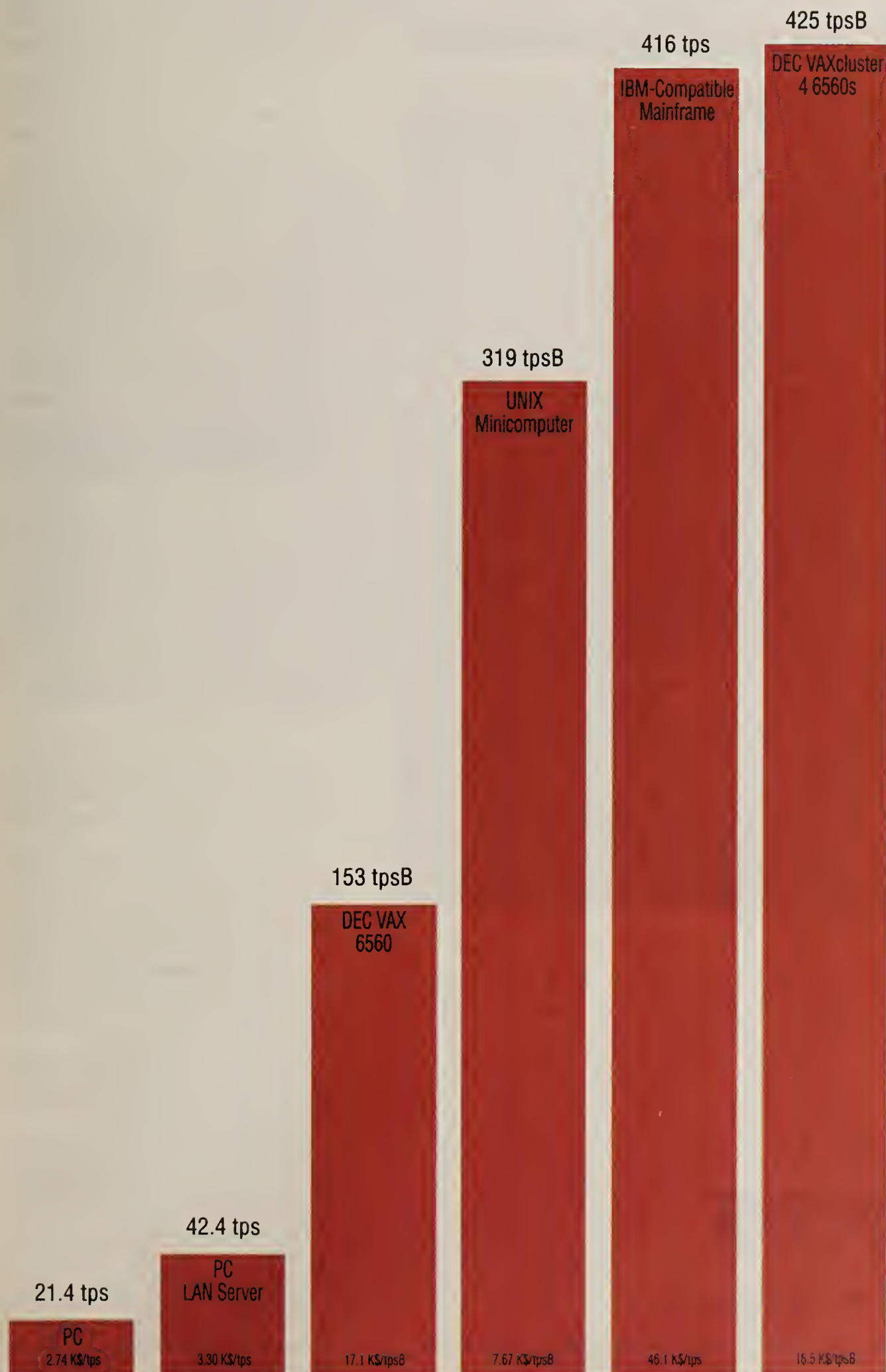
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Mainframe maker hits back

BY JEAN S. BOZMAN
CW STAFF

SUNNYVALE, Calif. — Amdahl Corp. responded to IBM's recent product barrage by cutting prices last week on its 5995M mainframes by 6% to 11% and by boosting processor performance by 15%.

The moves maintained Amdahl's lead in processor power, since the Amdahl 5995M uniprocessor is now rated at 56 million instructions per second (MIPS) — ahead of the IBM Enterprise System/9000's 47 MIPS, analysts said.

Amdahl said it gained its performance

boost on a new option called the Enhanced Performance Feature, which reduces processor cycle time. Amdahl said performance boosts ranged from 11% for the four-way 4550M to 13% for the six-way 6650M and 15% for the eight-way 8650M. The six-way and eight-way models will be shipped in the second quarter of 1992; the other models will be shipped to customers this fall.

Amdahl, however, did not respond to IBM's recent announcement of new Escon features. "We're going to ship Escon in the second quarter of 1992," said Henry Cassel, director of processor market-

ing at Amdahl.

Historically, Amdahl has waited until its products have shipped before cutting prices and boosting power. But in this case, the 5995M processors, announced in September 1990, will begin to ship after the high-end ES/9000s, which shipped last week.

"Amdahl needed to establish some perceived advantage to continue the momentum they've built over the last few years as IBM's leading competitor," said Frank Gens, vice president of technology assessment at Technology Investment Strategies Corp. in Framingham, Mass.

On the storage front, plug-compatible mainframe maker Hitachi Data Systems Corp. in Santa Clara, Calif., last week announced its response to the new IBM

3390 Model 3 disk drive. The HDS 7390-3 Disk Storage Subsystem matches the IBM 3390 Model 3's 34G-byte capacity. The HDS disk drive has an access time of 12.5 msec, somewhat faster than the IBM 3390 Model 3's 15-msec access speed.

ES/9000

CONTINUED FROM PAGE 1

both users to better manage mainframe work loads.

"From a management perspective, the more work loads we can put on one, the better and more efficiently we can operate," said Gary Weis, senior vice president of networking and technology services at Sears Technology Services, Inc., Sears' information systems subsidiary.

While Sears would not reveal what its order will cost, it did say that it will not be paying the \$22.8 million list price. Nonetheless, IBM stands to realize revenue of well over \$100 million on this order alone — even if it were to sell at half price.

Sears will lease through IBM Credit Corp., and its price will be based on volume procurement policies, Weis said. These deals typically involve discounts.

The retailer plans to use the 11 machines to replace 22 IBM 3090 600J-class pro-



Gary Weis

Bring in the big iron

Sears will add 11 IBM high-end ES/9000s to its giant arsenal

Sears, Roebuck and Co. Chicago, Ill.

| | |
|------------------------------|---------|
| 1990 revenue: | \$56B |
| 1990 profits: | \$902M |
| 1991 IS budget: | \$1.17B |
| IS staffing: | 6,238 |
| Data center value: | \$493M |
| Number of PCs and terminals: | 354,000 |

Source: Computerworld Premier 100

cessors. The systems will be installed between now and the end of next year. The first unit was enroute to Sears last week, and seven are expected to be installed by the end of 1991, Weis said.

American Express' Securities Information Group, which provides IS services to Shearson Lehman Brothers, Inc., replaced two 3090 Model 600-class processors and a 3090 Model 300 with its single Model 900, said Hank Hamilton, a senior vice president. The group installed the Model 900 in July as part of an early support program.

Hamilton said the additional processing power has made a big dent in time spent on batch processing, reducing the total nightly run by two hours.

Hamilton also said that the larger system allows his staff to adjust work loads as needed to provide them with the additional processing power of the Model 900.

The Securities Information Group had the chance to test this capability last month during the failed coup in the Soviet Union. Hamilton's staff was able to cut back on other work loads to handle heavy trading under the program it runs for Shearson Lehman.

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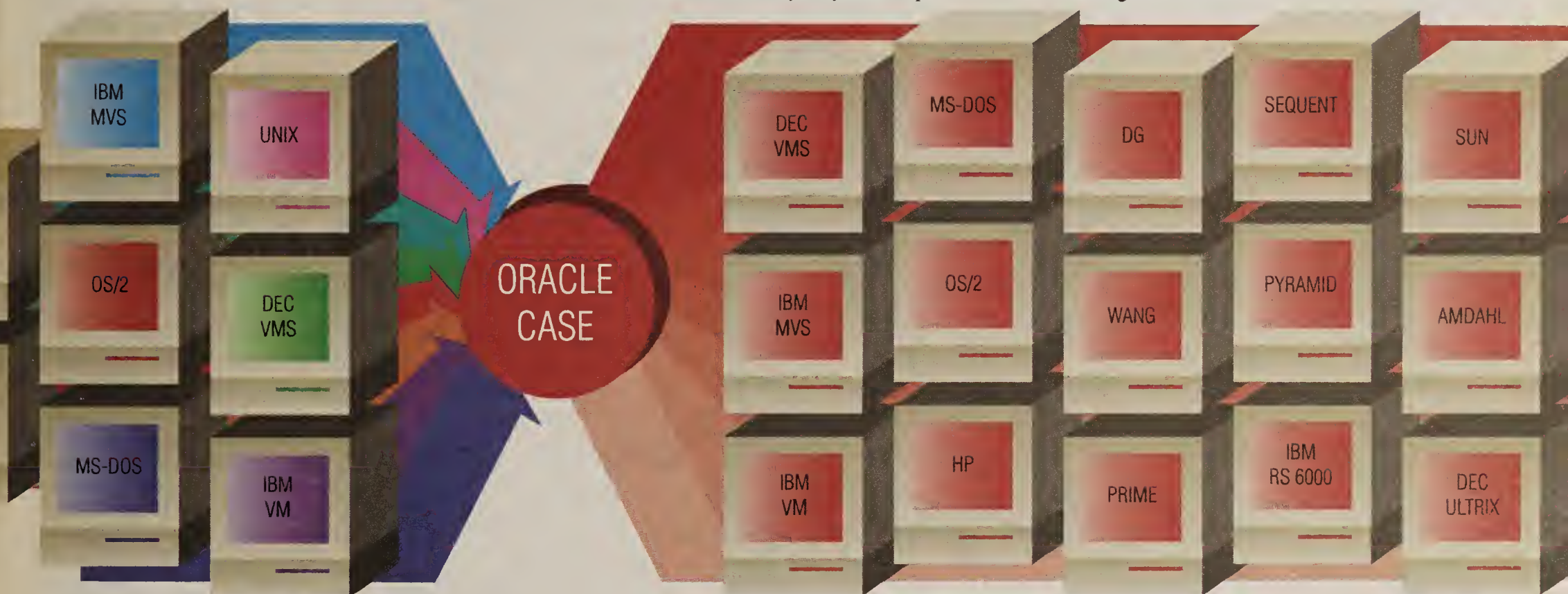
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TCA show to highlight frame relay

BY ELLIS BOOKER
CW STAFF

SAN DIEGO — Ultra high-speed networking is expected to take center stage at the Telecommunications Association (TCA) annual conference here this week, with frame relay

stealing the show.

User interest in expanded network bandwidth is part of the growing importance of LAN-to-LAN interoperability for storage-hungry applications such as document imaging and concurrent engineering, both of which demand the rapid transmission

of very large data files across a wide-area network.

Frame relay is a serial, wide-area, high-speed packet networking protocol that combines optimal use of network bandwidth with low network transmission delay.

British Telecommunications

PLC is expected to announce tomorrow the immediate availability of a trans-Atlantic frame-relay service, becoming the first carrier with such an offering. The service — at 56K bit/sec. to 64K bit/sec. — will initially be a subnetwork but will later become the basis of BT's backbone trans-Atlantic network, a company spokesman said.

Another European-based car-

rier, Cable & Wireless Communications Co., is expected to outline its frame-relay strategy at TCA.

MCI Communications Corp. will demonstrate high-throughput T1 frame-relay applications, such as distributed computing and the transmission of X-ray images at its booth here. MCI has said it will beta-test frame relay with a handful of customers during the first quarter of next year, and it plans to have commercial service available in the second quarter.

In addition, MCI will show for the first time its switched T1 and T3 services, which it announced last week.

Meanwhile, the first domestic carrier to state a frame-relay plan, U.S. Sprint Communications Co., is behind in its deployment timetable, according to analysts.

Interface specifications for the Sprint service were presented in late January with a commercial offering expected about this time. But that commercial service will not appear until December or early next year, according to Richard J. Malone, a principal at Vertical Systems Group in Dedham, Mass.

Chips to join 386 crowd

BY JIM NASH
CW STAFF

Chips and Technologies, Inc. will introduce next week its first microprocessor, a chip compatible with Intel Corp.'s 80386 line, according to a company source. The chip will add competition to a market overshadowed by Intel's multibillion-dollar bulk.

Chips and Technologies' long-rumored entry into the chip world will take place in New York Sept. 30, the source said.

The San Jose, Calif.-based personal computer-component maker refused to comment on the microprocessor.

Mike Cash, marketing manager at Twinhead Corp., a computer component maker in Milpitas, Calif., said he plans to unveil a PC using the chip at Comdex/Fall '91 next month. Cash said he expects to get both a briefing on the microprocessor this week and technical samples sometime this month.

"My view is that these products won't be shipped in volume until early next year," said Tom Thornhill, an analyst at Montgomery Securities in San Francisco.

The bulk of the microprocessor market will remain with Intel, Thornhill said, "especially the [value-added resellers] who want to play it safe" with their products.



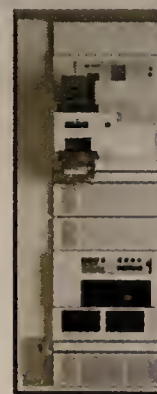
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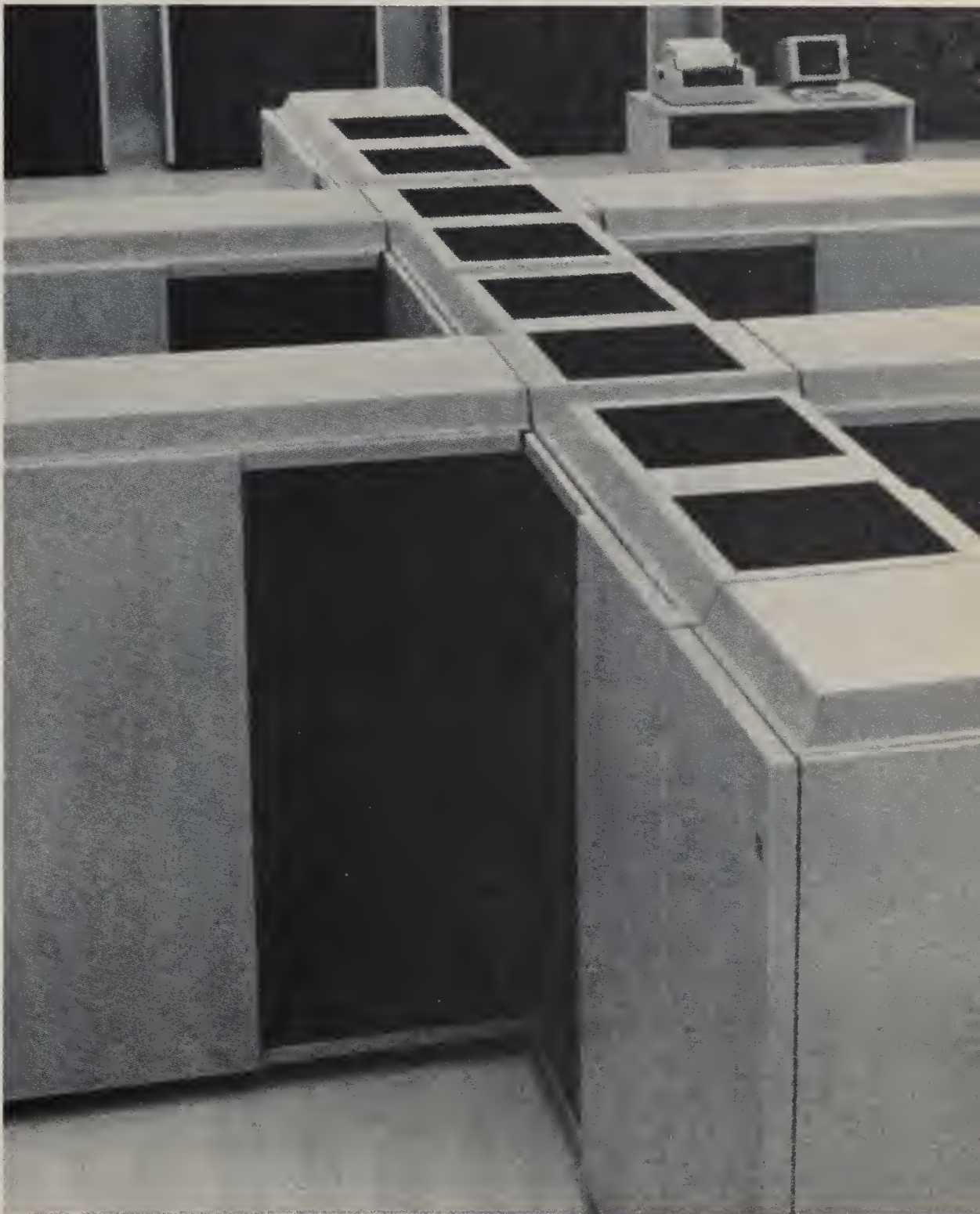
SYBASE also leverages the investments made in existing mainframe applications. SYBASE integrates new, LAN-based applications with mainframe applications written in COBOL, PL1 or Assembler, as well as with all data sources and services accessible from CICS, such as DB2, IMS/DB and VSAM. With SYBASE, existing mainframe applications don't have to be rewritten.

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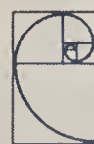
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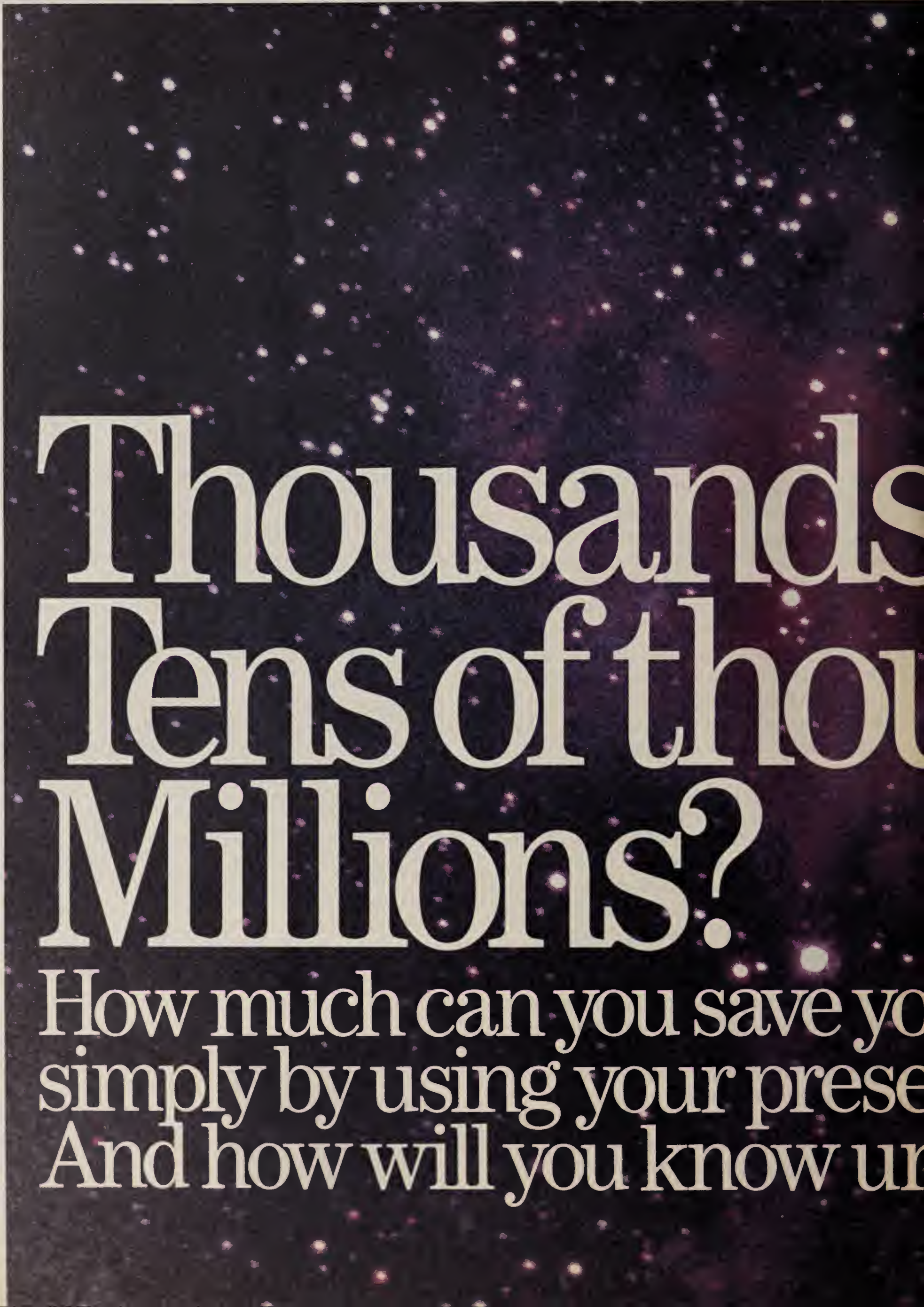
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HEWLETT
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IBM unit bags bank outsourcing bucks

BY NELL MARGOLIS
CW STAFF

TARRYTOWN, N.Y. — "Healthy banks don't outsource" has been the going wisdom in the banking industry. However, it could be headed for the history books.

Last week, for instance, Commerce Bancshares, Inc. signed over its mainframe-based information systems operations to IBM's outsourcing subsidiary, Integrated Systems Solutions Corp. (ISSC).

The Kansas City, Mo.-based bank holding company, which has \$6.4 billion in assets, is no struggling firm looking to

shuffle a high-cost operation off its books, according to Olson Research Associates in Greenbelt, Md.

Applying measures aimed at gauging a bank's soundness, Olson's 1991 annual survey of U.S.-based banks ranked Commerce the nation's best overall bank for the second consecutive year.

Details of the deal, one of three major outsourcing contracts landed by ISSC in a period of several days, were not disclosed. However, the bank confirmed that the parties sealed "a long-term agreement" — a phrase that implies a contract in the 10-year ballpark, according to ISSC Pres-

ident Dennie M. Welsh.

Under the agreement, ISSC will run Commerce's help desk, business recovery systems, data network and general IS functions. The bank will retain control of item processing, applications programming and applications development, "but we're out of the mainframe business," said Chief Executive Officer David W. Kemper.

About 60 IS employees will be affected when the mainframe mantle is passed to ISSC, Kemper said. "A significant number will be offered jobs at ISSC," he said. The bank will try to absorb those who are

not offered jobs, but "there will be some attrition," Kemper added.

ISSC, which was established by IBM in June, rounded out its first quarter in business with a triple score: In addition to the Commerce deal, it also inked outsourcing agreements last week with Brentwood, Tenn.-based Comdata Holdings Corp., a \$90 million firm that provides services to the trucking industry, and Meriden, Conn.-based Yankee Gas Services Co.

Yankee Gas, which, like Commerce, signed on for a "long term" under undisclosed financial terms, is ISSC's first utilities customer under contract. Formerly a division of Northeast Utilities, Yankee Gas was spun off in 1989 as a separate natural gas services provider.

After the divestiture, IS director Darwin Kovaks said, Yankee continued to use Northeast's approximately 450-person IS department for all IS services other than applications development, which will continue in-house when Yankee "goes live with IBM" in early June 1992.

In contrast, Comdata's 10-year, \$120 million deal with ISSC is its first experiment with outsourcing. Comdata expects to reap "significant financial benefit" from the deal — savings it needs to help pay down a \$90 million bank debt that can be traced back to the firm's leveraged buyout origins four years ago, said Executive Vice President and Chief Financial Officer Tarpley Jones.

However, cost efficiency is the least of what Comdata expects to get from ISSC, Jones said. "What we really wanted was a full-scale technology partner."



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Firms settle in Italy bust

BY KIM S. NASH
CW STAFF

MILAN, Italy — *Mi hanno rubato!* That is Italian for "I've been robbed," and that is what Lotus Development Corp. and Ashton-Tate Corp. cried when a raid of chemical company Montedison S.p.A., based here, turned up "hundreds" of unlicensed software packages from the two vendors.

"I've been paid" is what they said recently.

In an out-of-court settlement of the 2-year-old case, Montedison agreed to pay Lotus and Ashton-Tate \$178,000 for alleged copyright infringements and to replace the offending copies.

"There is clearly a bigger problem in Italy than in many places in the world," said Robert Holleyman, managing director of the Business Software Alliance, the international arm of the Software Publishers Association, which is a policing group. The alliance represented Lotus and Ashton-Tate in the Montedison legal action.

For every three personal computers installed in Italy, only one legitimate software application is installed, according to Holleyman. That ratio in the U.S. is 1 to 1.7, he said.

In general, software piracy is worse in Europe and Asia than in the U.S. Along with copyright infringement by commercial businesses abroad, computer dealers commonly sell hardware bundled with unlicensed applications, Holleyman said.

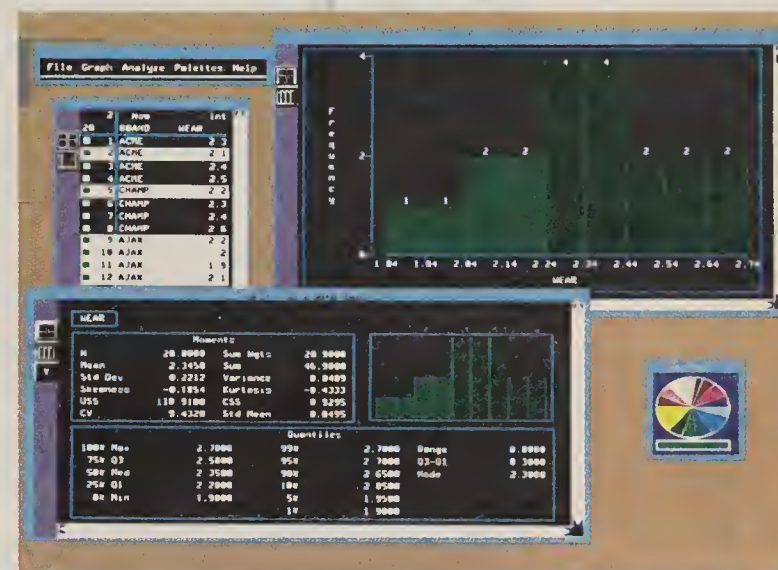
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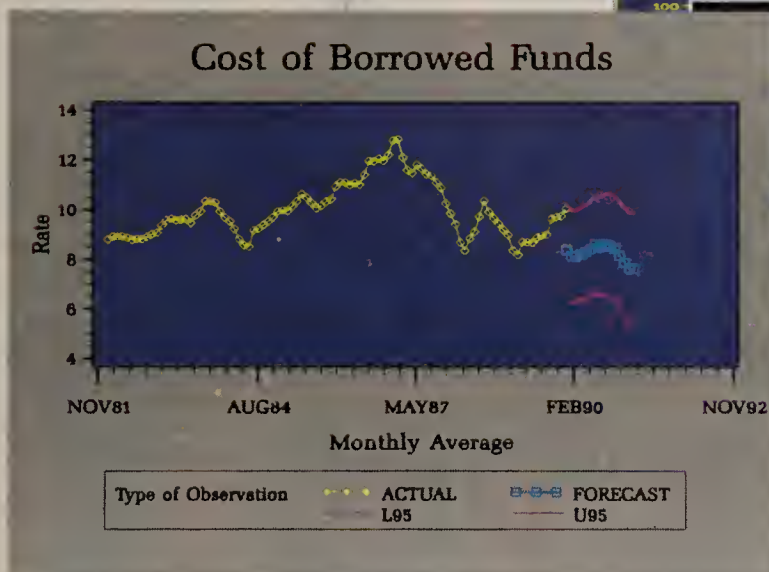


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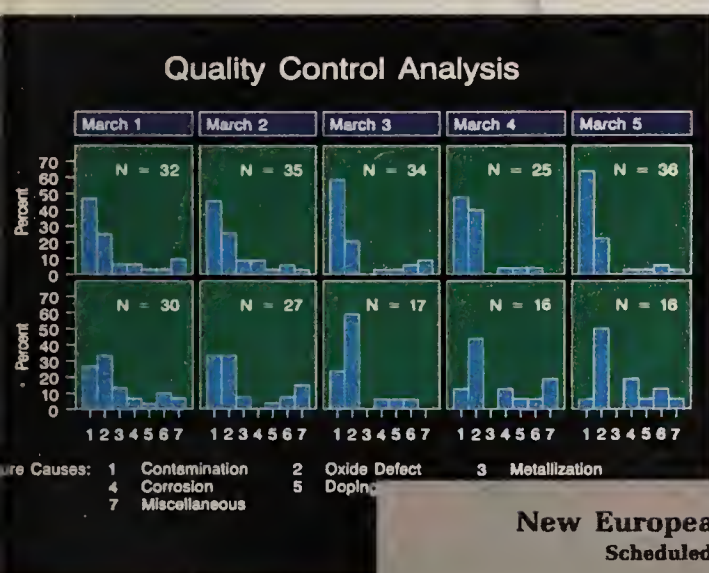
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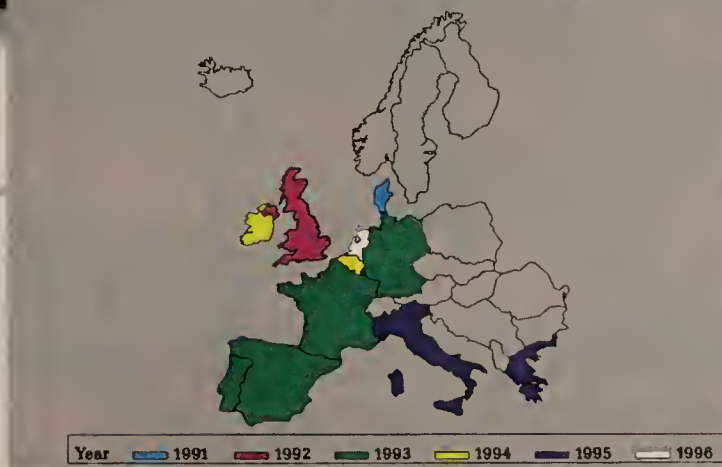
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ADVANCED TECHNOLOGY

TECH TALK

Video chip does windows

Pixel Semiconductor, Inc., based in Plano, Texas, recently introduced a video window generator chip that solves many of the problems of combining the best attributes of television and computers. It is the first single-chip video processor that provides smooth scaling of full-motion, real-time video for traditional desktop window environments, the company said. The chip can be used to insert video into any size window and position the window anywhere on a computer screen. It was designed to be used in multimedia, teleconferencing and various other applications, according to the company.

Decoding data device

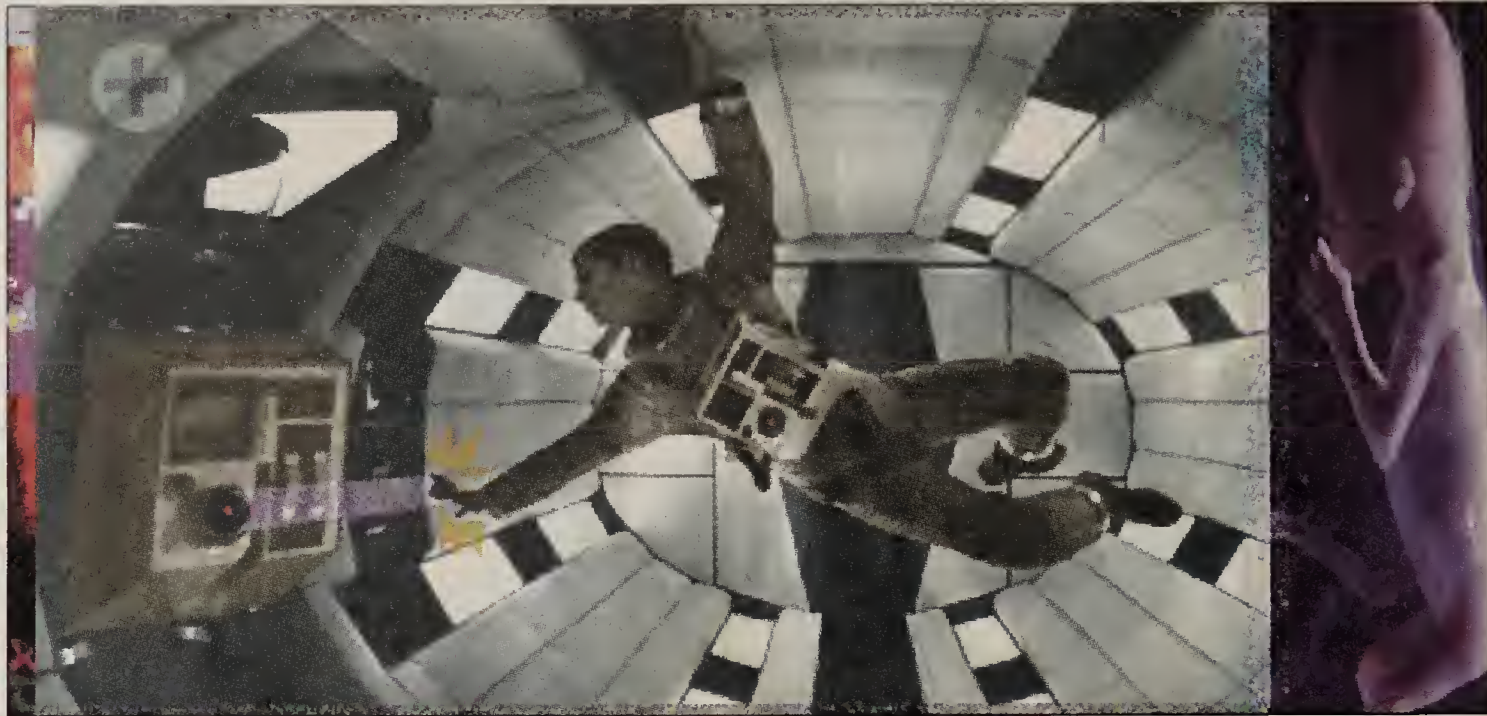
An increasing number of computer users are banking on encryption techniques to conceal electronically transmitted documents from prying eyes. One problem is that a slight blip in the encoding and decoding can completely scramble a message. Researchers at Sandia National Laboratories in Albuquerque, N.M., have devised a new way of detecting whether there has been a loss of synchronization in the decoding process. Conventional methods insert specific patterns of bits to indicate whether information has been lost in transit. The researchers have developed hardware that searches for an absence of information patterns.

Dial up the Marines

The U.S. Marine Corps has built a state-of-the-art information storage and retrieval system called On-Line Books at its research center in Quantico, Va. The system allows any Marine with a computer and modem to browse through an electronic card catalog and, soon, through the complete text of the Marine Corps University's war fighting collection. The information can be retrieved and printed or mailed electronically to any mailbox in the Marine Corps' worldwide network.

HAL creeps from theater to reality

Subject of 2001 science fiction classic may prove its utility in our everyday lives



Gordon Studer

HAL 9000 was once considered pure science fiction, but researchers are working to make its key elements reality

BY MICHAEL ALEXANDER
CW STAFF

Even careful viewers of the film *2001: A Space Odyssey* may have missed noting that the HAL 9000 became operational on Jan. 12, 1992. While that date is only a few months away, we are still several years from building computers with the abilities of the supercomputer that controlled the spaceship on its mission to Jupiter. That does not mean HAL will not be here when 2001 arrives, however.

"If you study HAL to figure out how to do everything that HAL was doing, what you come away with is belief that it's possible to get HAL-like behavior," said Robert Thibadeau, computer director at the imaging systems laboratory at Carnegie Mellon University's School of Computer Science.

Although computer scientists are not working on building a computer similar to the HAL 9000, many are working simultaneously on a wide range of technologies that would be necessary to complete the HAL puzzle.

HAL 9000, short for *heuristically programmed algorithmic computer*, was capable of mimicking such human traits as reasoning and expressing emotions, even to the point of extreme suspicion and paranoia.

In addition to controlling the entire ship's functions, HAL could simultaneously hold conversations, beat crew members at chess and then thank them for an enjoyable game.

Outside perception

HAL was equipped with a sophisticated machine vision system that enabled it to peer into its environment and even make sense of the activities that surrounded it.

It is reasonable to think that some computers in 2001 will be capable of

seeing the world around them, Thibadeau said. The scientist has created a high-resolution image scanner that uses machine vision to track freight cars as they roll into a railroad yard. The system works by recognizing each car's unique features and matching them to a "fingerprint" of the car in a database. CSX Corp., the project's sponsor, is now testing a system that has been set up in Tampa, Fla.

The technique of getting such systems to see and understand what they are watching is "straightforward," Thibadeau said.

Part of the problem can be solved with machine vision systems that adapt to changes in their surroundings, and considerable work has been done in that area.

The next step is to create computers, or what Thibadeau called "narration engines," that are capable of expressing opinions about what they see in order to determine whether their observations are truly valid.

"It has to be free to speak," Thibadeau said. "If you don't have that, it becomes an enormous engineering problem that is not doable."

The essential ideas for creating computers with the high level of artificial intelligence possessed by HAL are in place, said Patrick Winston, director of MIT's AI laboratory. Researchers are capable of creating programs that appear to reason, display emotions and exhibit other humanlike traits, Winston said. What is lacking and difficult to achieve is a way to instill a computer with common sense.

Doug Lenat, a computer scientist and director of AI at Microelectronics and Computer Technology Corp., has embarked on a 10-year project to create an intelligent system with a knowledge base containing millions of facts, beliefs and assumptions.

Six years into the project, Lenat

claims to be more than halfway to his goal. "Almost all software in the 21st century will be based on a platform of common sense. It will be unthinkable to write a program not based on common sense," Lenat predicted in the article "Packing some sense into computers" [CW, Oct. 15, 1990].

Voice recognition abilities

HAL was also capable of unrestricted, continuous voice recognition. In other words, it recognized every word spoken to it, no matter who said it or how fast. Today's voice recognition systems must be trained to recognize individual speakers, who must enunciate distinctly with pauses between words. Based on advances in voice recognition technology in recent years, researchers are expected to develop unrestricted, continuous voice recognition within five years.

HAL's voice recognition faculty was also linked to an ability to read lips. That may be the most difficult of all obstacles to overcome in constructing a HAL-like computer, said Ben Yuhas, a researcher at Bellcore. "Lipreading is pretty ambiguous," Yuhas said. Developing a machine capable of reading lips without putting limitations on the speaker or environment is on the "far horizon," he said.

While he was an electrical engineering graduate student at Johns Hopkins University, Yuhas experimented with a speech recognizer that used lipreading. He trained a computer to guess vowels based on the shape of the mouth and the position of the lips, teeth and tongue.

HAL was a skillful blend of natural language, machine vision, AI and other technologies. What will be most difficult is tying all of the pieces together to create HAL, the experts said. Chances of that happening by 2001 are slim but not impossible, they said.

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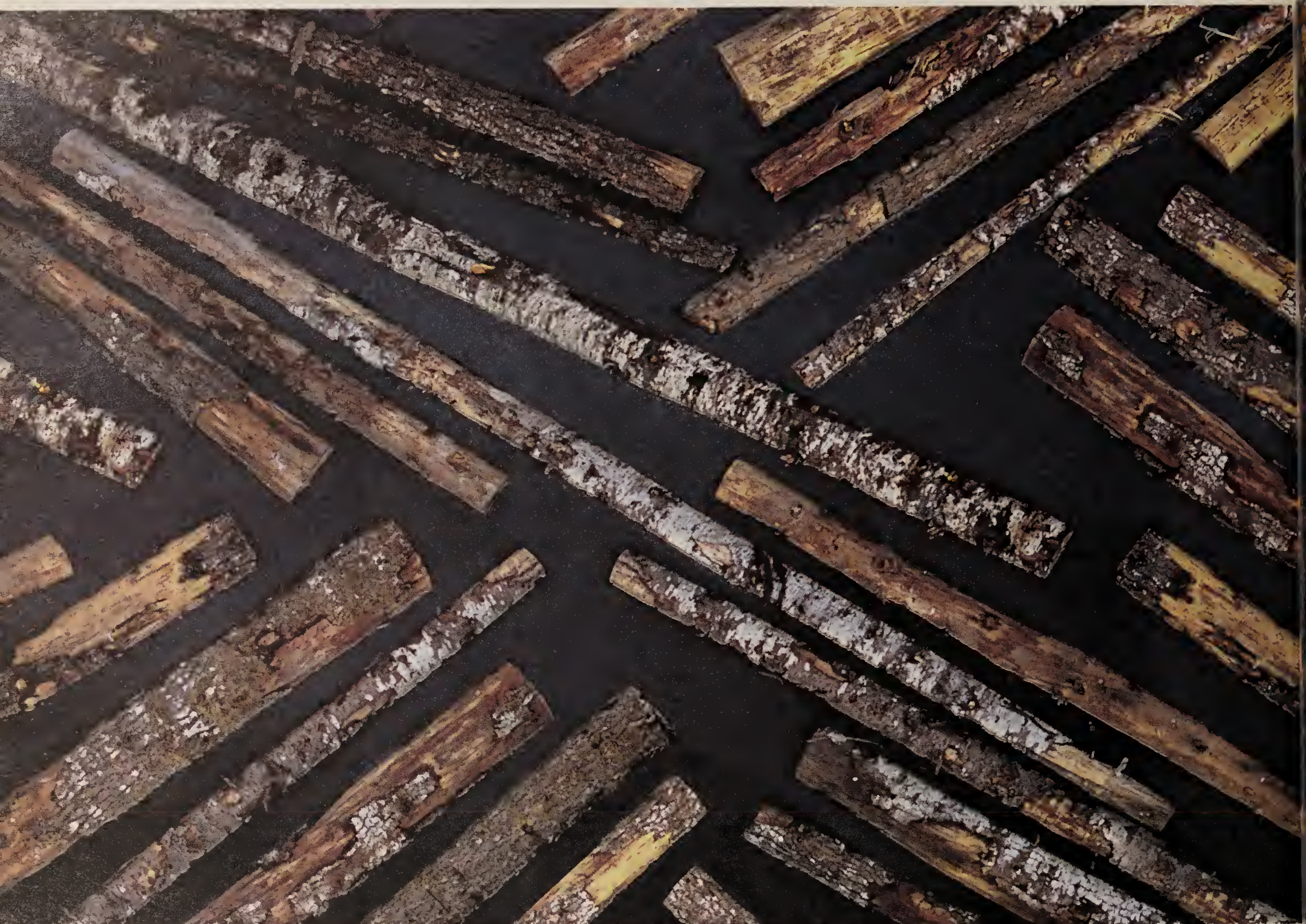
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EDITORIAL

Grounded

In the 10-plus years that we've had our mini-computer-based text-editing system, we have experienced the usual problems. There have been numerous software glitches, communications roadblocks, power spike-induced file corruptions and even a direct hit from a lightning bolt.

The worst problem, however, occurred when a technician tripped and tumbled into the backplane of one of our CPUs. He was carrying a printer, so he had plenty of force as he and momentum ripped the box apart. We laugh about the incident today, but we didn't then.

And so it was in New York City last week. Simple human error in the form of worker negligence brought vital communications links to their knees, abruptly closing airports and crippling computer systems. It seems like only yesterday (it was earlier this year, actually) that workers in New York accidentally cut a fiber-optic line in two — with similar results.

For most New York corporations in what is one of the most data-intensive areas in the world, the impact of the outage was minimized not only by fortuitous timing — coming late in the workday — but more importantly, by the foresight and planning of astute IS managers. Over the years, they have salted their networks with redundancy and backup in anticipation of the unpredictable.

Not so for the Federal Aviation Administration (FAA) and perhaps not so for AT&T, whose crews failed to respond to alarms that warned of power-supply problems. AT&T will pay a price as its competitors have a field day with the giant's claims of system reliability. That's another story.

But if the federal government isn't motivated to improve the FAA's systems by more than what amounted to only a stern warning — one that could have produced a disaster — then we the consumers may someday pay a terrible price.

In a nutshell, the FAA simply has not done what the private sector has accepted as standard operating procedure: Invest in adequate communications backup because disaster is bound to occur. In the private sector, this often includes the ability to switch to another carrier should the primary carrier fail. That's not the case with the FAA. But what the heck — it's only dealing with passenger-laden planes in the air, dozens at a time.

In February of last year, *Computerworld* launched a series of award-winning articles that highlighted the FAA's tribulations in upgrading its air-traffic control system, which was running years behind schedule and a cool \$15 billion over budget. An update of that series a few months ago showed little progress.

What exactly is the government waiting for? While it would be unfair to characterize the FAA's current systems as being held together by spit and bailing wire, they are far from adequate.

Congress and the General Services Administration ought to look upon last week as the last in a string of most beneficent warnings and then move the systems modernization of the FAA to a foremost priority.



LETTERS TO THE EDITOR

Remember CP/M

Your article on public access bulletin boards, "Ferret lovers unite — and download" [CW, Aug. 12], had a slight inaccuracy in the last paragraph. It stated that all one needs is an XT or XT clone to get started running a bulletin board.

In fact, there are several dozen, if not several hundred, such boards running on 64K-byte CP/M machines. Some of these are even networked into the Fiddnet system using software developed in Omaha.

CP/M is still very much alive for a supposedly dead operating system. Perhaps Digital Research, Inc. may someday realize it and provide a bit of support.

Bob Ackley
Certified data processor
Plattsmouth, Neb.

Sterling group deserves mention

I read your article "Errant EDI sparks vendor action" [CW, Aug. 12] with great interest. We believe there were some factual omissions in the piece in that Ordernet Services initiated the creation of the Interconnect Mailbag Control Structures in 1988 and has been its chief sponsor through the American National Standards Institute approval process.

John Stelzer, a senior electronic data interchange (EDI) consultant at Ordernet, has been the architect and chief proponent of the new standard and, in fact, held the referenced meeting of value-added networks in Columbus. We were disappointed that Ordernet's role was not mentioned.

A brief second point: Cummins Engine Co. referenced its EDI provider as Control Data Corp.'s Redinet. Sterling Software, Inc. finalized the purchase of Redinet at the end of June, and it is now a part of Ordernet.

Gail B. Whitcomb
Manager, Press and
Community Relations
Sterling Software, Inc.
Dublin, Ohio

Why license?

After reading the latest round of letters in the Sept. 9 issue of *Computerworld*, I feel I must jump into the controversy on licensing. I agree very much with those who oppose it.

Reader Rodger Silvers asserts that competency will be ensured, quality improved and confidence raised by licensing professionals. I would like to see proof of this. Look what the bar exam for lawyers has done for that profession in terms of competence, quality and confidence.

I believe licensing will become nothing more than a way to keep people out of the professions, regardless of their qualifications.

If people are worried about someone's competence, how about checking references?

As for licensing exams, these tests prove nothing more than that the person can pass the test. An exam cannot objectively test anything more than extremely basic knowledge. Anything more and the test becomes highly subjective. Who will make certain that those who make up a test are still current in their field?

Licensing should never be required of any professional but may be optional. Then you can let the users and public make

their own judgments about someone's competence.

Robert W. Davis
Catonsville, Md.

Trustworthy data

In regards to "Tip o' the hat" [CW, Sept. 9], if you truly believe that "it's important that you have data that you can trust and information that has been scientifically prepared," then you might pass this information along to your reporters.

In the same issue, you printed a story on the front page titled, "Obsolete methods earn FDA a lemon." It gave the impression that perhaps lots of "spoiled or contaminated food" was reaching store shelves.

It may be true that the Food and Drug Administration rejects 40% of the imported food it inspects and that it only inspects 2% of all imported food. However, your reporter failed to note that the 2% inspected is targeted by the FDA and is considered to have a higher probability of contamination.

Also, in your Trends section, you covered the move toward the adoption of Microsoft Corp.'s Windows. Polling only 45 people is hardly a way to measure a trend.

Charles F. H. Obrecht
Klamath Falls, Ohio

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor In Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail: COMPUTERWORLD. Please include a phone number for verification.

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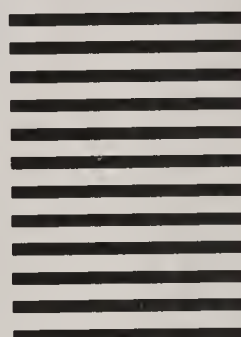
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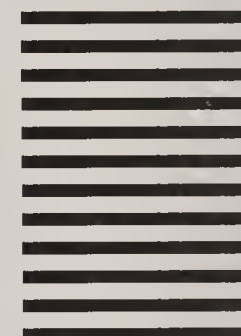
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Firms must lock on to security

Lax attitudes prevail despite systems breaches, endangering companies

STAFFAN PERSSON

Once it might have been reasonable to treat computer security as an afterthought, but that day is long past.

Our dependence on computers and networks has increased considerably in the last decade and so has the amount of trust that we must invest in computer-based information. It is, therefore, vital not only to keep that information confidential but also to maintain its integrity and availability.

To the extent that businesses recognize computer security threats at all, they seem to view them mostly in the light of danger to confidentiality. In fact, breaches of confidentiality are probably the least serious and most containable kind of damage that can be sustained. As long as confidentiality is the only issue, the risk is usually limited to the victim organization. When integrity is tampered with, the effects usually go further, impacting customers and compromising trust in the company.

Incidents noted

A number of recent incidents of computer break-ins have brought more attention to the problem of security flaws, but they have not really caused a fundamental change in attitudes toward computer security.

The Internet worm, which attacked certain Unix systems, re-

vealed to a wider public a number of flaws in systems software that were well-known to the computer community. It also had some positive effects in that fixes were soon available and emergency teams were set up to deal with future incidents.

Password penetration

Unfortunately, this increased attention to security on the Internet has also boosted the development of password crackers.

There exist a number of "public domain" password crackers that are likely to crack a fair number of passwords on most installations because most Unix systems still store their passwords in a form that, even though encrypted, is still readable. Due to bad password management, any cracked password is likely to be valid over long periods and on a number of machines.

By adopting the security strategy of fixing flaws as they appear, companies not only run the risk of being attacked but also run the risk of not noticing when they are being attacked.

Experience has shown that it is hard to notice when intruders have entered the system and an incident that is not noticed immediately is difficult, if not impossible, to trace. Running the risk of losing information or having information manipulated without even being able to trace the culprit through an audit trail

means losing both money and trust, without any legal recourse.

Operating a company this way is similar to driving without a seat belt until you are involved

the norm for commercial use. Most companies would rather spend money on something visible, such as performance, than on something invisible, such as security features or training that would result in good administration of security.

The C2 level is a good starting point for commercial security. C2 systems are quite easy to maintain and to bring into an or-

ethics — not only the ethics of computer hackers, which are often discussed, but also our own ethics in handling our data and that of our customers.

Unfortunately, many sad examples of lax security attitudes suggest that company ethics and attitudes regarding computer security are not what they should be.

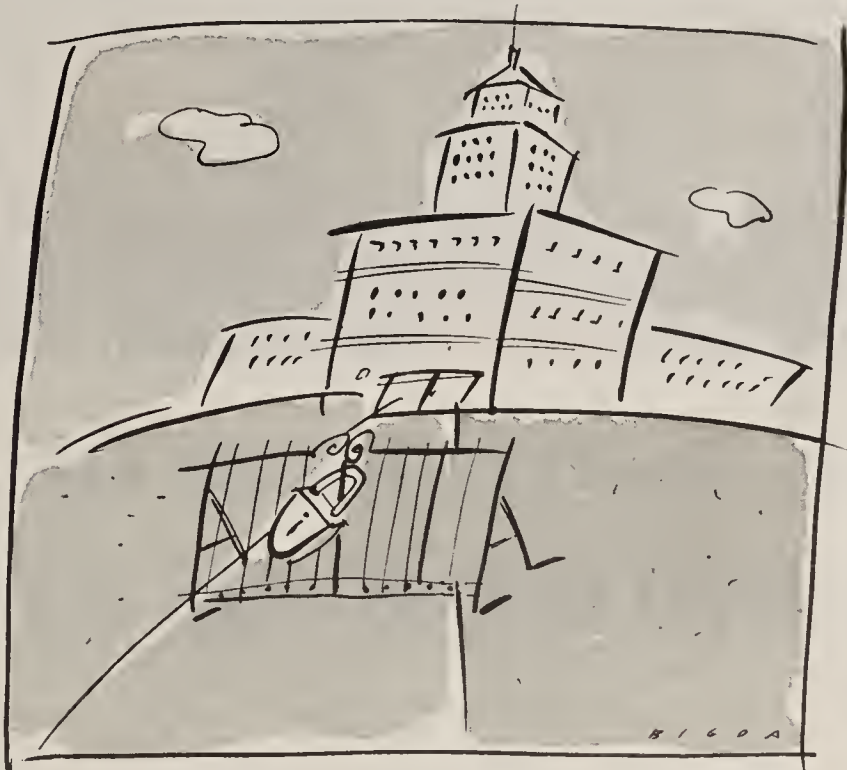
Bug problem

One example I know of involves a serious security bug that was found in the operating system of a computer vendor. Anyone using the system could obtain unlimited (superuser) privileges in the system by means of that bug.

This flaw was discovered by a team developing banking applications and was reported several times without any action being taken by the vendor to fix it. Since then, several hundred systems have been sold by the vendor to major European banks, which are now using them in their daily work.

Comparable examples could easily be found in any country. Most organizations anywhere in the world tend to regard "safe" computer systems as "military stuff." To them, computer security is something that can be deferred until a threat becomes explicit. Few people would want to be customers of a bank that leaves its front door unlocked all night, but that's not far different from the kind of protection that most organizations provide for their own data and that of their customers.

Persson is a software engineer at Open Software Foundation, Inc. in Munich.



Diane Bigda

in a car accident.

There are preventive measures available. Most system vendors have security products or secure operating systems at the U.S. Department of Defense's Trusted Computer Security Evaluation Criteria C2 level or equivalent.

However, these systems are considered exceptional and not

organization. They contain strong identification, authentication and auditing features. A C2 system is not necessarily hard to penetrate, but any penetration is likely to be detected so that legal action can be taken if an attack on the system does succeed.

Finally, in facing the new threats of crimes or computer abuse, we need to be clear on

Statistically speaking, data can be misleading

WILLIAM D. HARRISON



Statistics can be a great help to IS managers — to any managers for that matter — but if not handled with care, they will lead you convincingly in the wrong direction.

Consider two stories from the late 1950s that involve statistics and critical business decisions.

The first tale is that of a large industrial company that was trying to decide whether or not to get involved in the development and manufacture of computer systems.

The company charged its marketing department with the responsibility of studying the potential market for computer mainframes and making a recommendation to corporate management. The marketing department spent several months

studying the problem and eventually scheduled a meeting to present its findings.

During the meeting, many view graphs were produced, showing statistics such as the number of Fortune 500 companies that might spend \$500,000 to purchase a single piece of equipment, the number of companies in this group that had training departments capable of handling a complex product such as a computer system and the number that were likely to need programs involving complex and lengthy mathematics.

The head of marketing summarized the information. Based on the accumulated data, he said, it appeared that the computer mainframe market was limited to between 50 and 100 machines. Based on the statistics presented, the firm did not make a major investment in computer systems. Several years later, company executives realized

they had made a mistake, but it was too late. The window had closed.

The second story is about the head of a company that did get into mainframes and is in that business to this day. It is a familiar story in the halls of IBM and involves Tom Watson Sr., who was a master at refuting irrefutable statistics.

IBM was deciding whether to begin using the new transistor technology or to continue using vacuum tubes. The engineering department studied the problem, presented statistical evidence showing the superior reliability of vacuum tubes and recommended delaying a move to transistor technology.

Watson responded by saying, "I really can't argue with your statistics." He then reached into his pocket and pulled out a pocket transistor radio. At that time, pocket transistor radios were rare. No one in the room had seen one before. Watson turned on the radio and said, "But this thing sure seems to work good." IBM made the right decision and began switching to transistor technology.

Almost everyone has been in

a meeting where management has made a wrong decision because someone quoted a statistic that could not be refuted on the spur of the moment.

Problems are not caused by statistics. Problems are caused by people misusing statistics.

Statistics, when used properly, are a valuable management tool. Statistics can tell managers many things — average lines of code produced per man-month, probability of a computer becoming overloaded and programmer attrition.

Without statistics, it would be extremely difficult for an IS manager to do his job. However, statistics can be misleading.

By way of example

The classic example of misleading statistics is the box of steel balls. The example assumes the existence of a box of steel balls that have an average diameter of two inches. The largest steel ball has a diameter of three inches and the smallest has a diameter of one inch. Knowing these statistics could be helpful in many ways. You could calculate the average weight of a steel ball, or you could consider problems that

might be encountered in handling them.

What it is impossible to tell from the information provided is whether there is actually a steel ball in the box with a diameter of two inches.

The point is that statistics can never substitute for reality.

Perhaps the average software module can be programmed in two days, but there is nothing to say that the one you will work on next won't require two weeks. Statistics may tell us that the average time to put an engineering change into the production line is three days, but that doesn't mean some changes don't legitimately take three weeks.

Statistics may tell us that the employee attrition rate is one out of every 10 employees per year. But the fact that this is a statistic should not make it acceptable.

Some decisions can be made using the generalities of statistics, but other decisions are best made by understanding the specifics of the problem.

Harrison is a consultant based in Gainesville, Fla.

SYSTEMS & SOFTWARE

COMMENTARY

Johanna Ambrosio

An open question



IBM's recent announcement of its Open Enterprise strategy underscores some of the central issues being faced by the entire industry: How open is open, and how quickly do customers want to get there?

The answer is, it depends. Users, like vendors, are not all starting from the same place, and so they find themselves going at different speeds. It's not unlike any other new technology — some IS shops embrace a new release of an operating system right away because they want to stay current; others would rather be behind the edge a bit and wait for any bugs to be worked out. What's right for one, and the exact implementation strategy for getting there, is not necessarily right for all.

These different views of open systems, and of IBM's and other vendors' implementations of open systems, can be compared to the glass of water that some see as half full, some as half empty.

Many users are piloting open systems — mostly Unix machines — as a way to get more MIPS for their dollars. These folks are relatively happy having a number of suppliers to choose from, which is pretty much the competitive hardware situation that exists today.

A smaller number of customers are adopting open systems more as a philosophy of

Continued on page 20

IBM lures database vendors to DRDA

BY JEAN S. BOZMAN
CW STAFF

When IBM announced its plan to "Integrate the Enterprise" on Sept. 11, a key consideration was gaining the cooperation of independent database vendors whose products "own" the non-IBM data.

So far, nine independent vendors have agreed to make their products compatible with IBM's Distributed Relational Database Architecture (DRDA), but more than 20 others are still considering the move, sources said.

The participating vendors include some of the biggest players in the database industry: Oracle Corp., Sybase, Inc., Informix Software, Inc., Computer Associates International, Inc., Bor-

land International, Inc., Novell, Inc., Locus Computing Corp., Micro Decisionware and Gupta Technologies, Inc. Notable by its absence, however, is Ask Computer Systems, Inc., which owns the Ingres Corp. relational database management system.

By complying with DRDA standards, a vendor can write one interface and gain connectivity with all four of IBM's relational databases: DB2, SQL/DS, the Application System/400's OS/400 database and OS/2 Database Manager.

Many of the DRDA program participants already had some measure of connectivity to IBM's relational databases, usually through "gateways" to specific IBM products. "Even without DRDA, we were committed

to providing connections to each of those IBM platforms," said Umang Gupta, chief executive officer of Gupta Technologies. "It's just that now, IBM is doing more of the work."

Oracle, for example, already has a DB2 gateway and is working on gateways to other IBM databases. "We have the specifications, and if we wanted to, we could go blindly forth and write our own code," said John Steensen, vice president of Oracle's IBM products division. "The value for us will be working closely with IBM. It should speed up the development process."

Some users thought IBM's DRDA program could simplify their work lives. "Being able to distribute a remote unit of work is nothing new," said Jeff Ferre,

a senior database manager at General Dynamics Corp. who uses DB2, Oracle and Ingres relational databases. "But I could do relational joins across database platforms when the DRDA

SOME USERS thought IBM's DRDA program could simplify their work lives.

standard gets to the level of a distributed unit of work." Currently, General Dynamics programmers must create complex electronic reports to shuttle data from one database to another.

At Ingres, Marilyn Bohl, vice president of engineering, said last week that the firm had decided to devote its limited development resources to supporting its own Ingres-to-DB2 gateways. While not ruling out eventual cooperation with IBM's DRDA effort, she said that it was not an immediate priority.

Ask/Ingres is part of the SQL Access Group, which is working on industry-standard SQL commands. "At this point, you are not getting [network] transparency with DRDA," said Bohl, who previously worked at IBM on DB2 development. "With the Ingres gateways, you get transparent access to multiple database systems, including Digital's RDB and IBM's nonrelational IMS database."

IBM will provide the nine vendors with DRDA "test suites," benchmarks and technical support to "help them get a jump start on DRDA," said Thomas Furey, assistant general manager of IBM's Santa Teresa software laboratory located near San Jose, Calif.

Distribution plan begins to take shape

Initial implementation to go out with latest release of relational DBMS

BY ROSEMARY HAMILTON
CW STAFF

IBM will put its own Distributed Relational Database Architecture (DRDA) to work early next year when an initial implementation of it is shipped with its primary relational database management systems.

Earlier this month, IBM said it would begin shipping additional distributed capabilities for DB2 in March 1992. The distributed function will be added to DB2 Version 2.3, which was announced last year and will begin shipping next month.

DB2 communication

When this additional component becomes available, DB2 will be able to talk to the other host RDBMSs in the IBM Systems Application Architecture (SAA)

environment, including SQL/DS and the OS/400 database manager. The company has targeted that same time frame for a link to

The lineup

IBM's initial DRDA implementation is the remote unit of work and will be delivered for connection to various IBM platforms in 1992

| | |
|-------------------------|-------------------|
| Base DB2 release (2.3) | Oct. 25, '91 |
| Other DB2 databases | 3/92 |
| VM SQL/DS | 3/92 |
| OS/400 database manager | 3/92 |
| OS/2 database manager | Targeted for 3/92 |

Source: IBM

CW Chart: Janell Genovese

the OS/2 data manager, but that development is dependent on the shipment of the latest OS/2, Version 2.0, which is generally expected to begin shipping by

the end of the year.

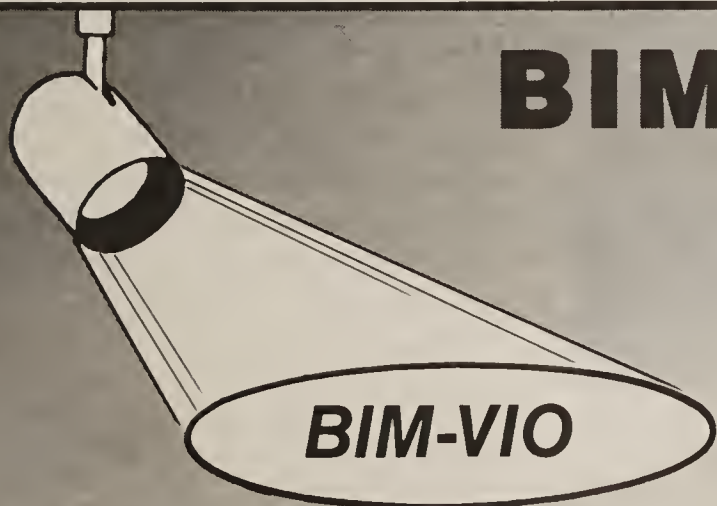
The initial DRDA function is a remote unit of work capability. It enables a user working in one SAA relational database to read and update information in another SAA database as long as both support DRDA.

The user cannot read and update multiple databases at the same time. But after a read and update is performed on one database, the user can then move to another database and perform the same set of functions.

Previously, IBM provided what is known as like-to-like distributed capabilities for DB2 users and SQL/DS users. This allowed users in either environment to access data in like databases.

However, the users were not able to move beyond their defined database environments.

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D&B envisions place in relational world

BY SALLY CUSACK
CW STAFF

FRAMINGHAM, Mass. — Dun & Bradstreet Software is shifting its overall software strategy to accommodate a fast encroaching world built on relational software and client/server systems.

Though all the details are not ironed out, according to Bobby Cameron, director of D&B Software's client/server business area, the company had already completed much of the necessary work on a relational enterprise model for moving its user base of predominantly IBM VSAM customers into the relational world.

"Prior to this, our focus was toward host-based terminals talking with IBM DB2 applications," Cameron said, adding that the shift this past year is to expand on this Systems Application Architecture standards base to a client/server orientation.

The vendor is working on "middleware" software products, which will reside on a server to convert downloaded VSAM

files to relational formats. These can then be accessed by SQL-based products on personal computer or workstation client platforms.

This strategy will allow customers to simultaneously embrace both relational and client/server technology.

Eventually D&B Software will be able to move mainframe batch jobs onto a relational database management system enterprise model, Cameron said.

Technical push ahead

With the first products scheduled to roll out the door about the beginning of next year, the vendor has a lot of technical ground to cover in a relatively short period of time.

Cameron said the middleware will add actual data structure from the mainframe to the server platforms. The server can be any type of Intel Corp. I486-based system or a midrange computer.

Clare Gillan, manager of applications solutions at International Data Corp., a research



D&B Software's Cameron: Ready for the relational world

firm in Framingham, Mass., said much of the vendor's success will depend on how well it conveys this strategic directional message to customers.

"It is not a big negative that they don't have client/server today because most people aren't ready for that yet," Gillan said. "What is important is that they maintain the confidence of their customer base during transitional periods."

D&B Software is facing stiff competition from several directions these days, Gillan added. This includes Ross Systems in the Digital Equipment Corp. VAX world and Sap America, Inc. in the IBM manufacturing market.

So far, D&B Software customers are taking a wait-and-see stance on the client/server relational strategy until more details are available.

"A lot of what [D&B Software] is demonstrating is graphical user interface stuff," said Tom Gallant, systems specialist at Disney Worldwide Services, Inc. in Burbank, Calif. Disney is currently using D&B Software's general ledger, accounts payable and purchase order products in an IBM 3090 environment.

As far as the middleware pieces of the strategy puzzle go, it's "mostly speculation at this point — we haven't seen any products," Gallant said, adding that Disney is not looking at moving anything off the mainframe in the near future.

Carol J. Anderson, vice presi-

dent of information technology at TTX Co. in Chicago, said that while the firm has an understanding of D&B Software's general client/server direction, no specifics have been made available at this point.

Selling the strategy

D&B Software is taking steps to educate customers on the client/server model. The vendor will soon mail out white papers to customers that will detail D&B's client/server strategy and will be sponsoring forums on an international basis starting in October.

The purpose of the forums is to educate customers on the benefits of client/server architecture, a company spokesman said. The vendor also said that directional issues will be addressed at major user group meetings this fall.

While D&B Software is working toward the client/server goal, one very important piece of the strategy has yet to be determined.

According to Cameron, the vendor has not yet selected an operating system for the PC local-area network portion of the platform. "That is still in negotiation," he said.

IS staff challenged by realtor's dual identity

BY MARYFRAN JOHNSON
CW STAFF

BOSTON — Whenever Dennis Pyburn steps out of his office on Rowes Wharf, he carries two business cards.

One card identifies him as vice president of information systems at The Beacon Cos.; the other introduces the president of Atlantic Business Systems, Inc. (ABS).

Will the real Dennis Pyburn please stand up?

"We all have dual business cards around here, actually," Pyburn said of his seven-person information systems staff, which handles all computing needs for Beacon's \$2 billion worth of real estate development, construction and property management businesses.

On the sidelines, however, the staff moonlights for the fledgling, 6-month-old ABS, which offers a roster of planning, support, facilities management and training services for IBM Application System/400s, the older IBM System/34, 36 and 38 line, JD Edwards & Co. business software and personal computers.

"We're looking to see what business comes our way. But the needs of The Beacon Cos. do come first," Pyburn said. "We really do strive to separate the two jobs we do, even though

we're doing it all with the same staff. ABS has its own profit-and-loss plan and its own financial goals. We want, eventually, to be a stand-alone company."

This unusual state of affairs for a corporate IS division is both an opportunity-knocks response to the slowing economy and an exploratory trip down new business pathways for Beacon.

"Some of the business just knocks on our doors, and other is word of mouth," Pyburn said. One client, for example, leased time on Beacon's AS/400 Model B60 for employee training, with the fee split between Beacon and ABS.

Happy customers

The Boston office of Coopers & Lybrand recently turned to Pyburn and his staff for help in migrating a client's tax information from old IBM System/34 and System/36 systems to an AS/400, then downloading the information to a PC-based Lotus Development Corp. 1-2-3 spreadsheet.

"Everybody said you should be able to do that, but I certainly didn't have the expertise," said Nicholas Iacuzio, a director at Coopers & Lybrand's real estate group. "Dennis and his company took it, analyzed it over the weekend and wrote the program. I knew he'd done enough applications so he could under-

stand what I was looking for and do it quickly and effectively."

The Beacon Cos., employing 4,000 in Massachusetts and several other states, include Beacon Construction Co., Beacon Hotel Corp. and Beacon Management Co. The corporate IS division, part of The Beacon Cos., is responsible for some 175 users at the home office and in 30 remote sites, which are tapped into the AS/400 via a wide-area network.

Pyburn joined the company in 1988 with a mandate to overhaul Beacon's batch-oriented IS operation, which then relied on a pair of aging IBM System/36s. In the process, he employed a sweep of current IS strategies: upgrading,

downsizing and outsourcing.

"We've reduced our IS budget 40% since I started; we have the latest technology and our capital budget is down," Pyburn said.



Beacon's Pyburn juggles two roles

Beacon installed one of the Boston area's first AS/400s three years ago, trimmed its IS staff from 17 to seven and outsourced the company payroll application and PC training functions.

The IS division also undertook a major software migration from in-house applications to core financial packages from JD Edwards and is now migrating to JD Edwards' commercial and residential property management software.

Last year, Beacon doubled its

disk storage capacity and automated the data center with the purchase of IPL Systems, Inc. cartridge tapes, removing the need to have an employee do nightly backup.

The firm's increasingly active users now write their own reports and perform other programming tasks that once took weeks to accomplish through central office processing, Pyburn noted.

Managing the demands on the IS staff from both The Beacon Cos. and the handful of ABS clients has been "situational" so far, Pyburn said. "In some cases, we have had to turn down [potential] jobs."

IBM recently granted ABS the status of business partner, which not only "makes us sound real" but also opens the way to IBM's educational resources, according to Pyburn.

Bull HN adds five models to DPS line

BY SALLY CUSACK
CW STAFF

BILLERICA, Mass. — Bull HN Information Systems, Inc. recently extended its DPS 6000 line of proprietary minicomputers by adding five new models.

The most significant feature of the DPS 6000/500 systems is that they give customers the option of running the AT&T Unix operating system concurrently with Bull applications under GCOS6 via an Extended Capability Processor.

According to Steve Josselyn,

a senior analyst at International Data Corp., a market research firm based in Framingham, Mass., the machines will provide a transition for customers in a GCOS environment by allowing them to experiment with Unix applications.

A solid effort

Roy McRee, general manager at Graybar Electric Co. in St. Louis, has seen the new systems and said he thinks they are a good, solid product. However, Graybar does not anticipate using the platforms in the near future,

McRee added.

The company, a longtime Bull customer, currently has 21 DPS 6 minicomputers functioning as nodes on an X.25-based network.

Targeted at midsize organizations and departmental applications, the 500 family single- and dual-processor computers support from 16 to 80 direct users. Each model may be expanded to accommodate up to 32M bytes of main memory.

The 500 family is available immediately, with prices ranging from \$46,000 to \$137,195.

SQL Solutions opens RMS Gateway

BURLINGTON, Mass. — SQL Solutions, Inc., a subsidiary of Sybase, Inc., recently swung open an RMS Gateway product that provides interoperability between Digital Equipment Corp. RMS flat files and the major relational database management systems.

The RMS Gateway, which is priced between \$22,000 and \$115,000, depending on VAX size and configuration, is a translation engine that enables applications to retrieve and update information transparently from RMS files into RDBMS products from a variety of firms: Sybase, Oracle Corp., DEC, Informix Software, Inc. and Ask Computer Systems, Inc.'s Ingres

Products Division.

Analysts said the product is similar to Ingres' full-function RMS gateway, released 18 months ago, which enables database updates, rewrites and full SQL translation between RMS files and the Ingres database. In addition, DEC offers a retrieval-only product called Rdb Access for RMS, and Oracle has an RMS gateway called SQL Connect for RMS.

The difference with SQL Solutions' approach, according to analysts, lies in offering gateways connecting RMS to all the major database vendors rather than to only a few.

MARYFRAN JOHNSON

Ambrosio

CONTINUED FROM PAGE 27

computing to allow them to get to an environment where applications are portable and where all their computers can communicate with one another. It is this second group that is pushing hard for vendors to be as completely "open" as possible as quickly as possible.

One can certainly understand that desire, but on the other hand, there is a quarter-century's worth of installed base that needs to be brought along. The key word here is balance — measuring the business needs of one group of users against those of other groups.

Even the open systems user groups

that have been sprouting up — among them, the User Alliance for Open Systems and the so-called "Group of 10" — do not speak as one voice for the entire user community. These groups, while certainly helping to focus the discussions much more than in the past, have different constituencies with different needs. Vendors can't possibly react or be expected to react to everyone's demands at the same time.

On the third hand, as they say in diplomacy classes, it's easy to take potshots at individual vendors' open systems strategies, especially IBM's. The "o" word is relatively new to IBM's corporate vocabulary, and, to be sure, IBM is among the last of the big vendors to embrace open systems.

Skeptics abound, especially among the open systems purists. Some espouse what one consultant calls the "Darth Vader view" — that IBM is secretly working against open systems to try to retain control over its customers. The top IS executive at a national retail chain says, "I'll believe IBM is serious about open systems when open systems play in their proprietary architectures like AD/Cycle and Systemview."

Rikki Kirzner, an analyst at Dataquest, Inc., says, "It's obvious that IBM wants to open up as much as possible but still have control."

To be fair, users and others have similarly questioned the commitment of many vendors, including Sun Microsystems and Microsoft, to the open systems concept. No vendor is completely above reproach in this area.

IBM executives acknowledge the criticism. "I know it's hard to believe that a leopard becomes a tiger overnight," says Mike Saranga, assistant general manager of systems structure and management for IBM's Programming Systems line of business and one of IBM's open systems strategy architects. "You could say that we're late to this game, and we sold against the open systems market for many years. I don't blame people for saying those kinds of things."

Still other observers believe IBM is seriously interested in opening up its architecture because if it does not, it will not thrive as a business entity. The bottom line, they say, is the bottom line; IBM knows that if it does not fulfill its customers' open systems needs, some other vendor will.

The president of a software company that works closely with IBM's open systems group suggests that the truth lies somewhere in the middle. "IBM is really two companies," he says. "One group is trying to make its open systems offerings as attractive as possible to show those MVS guys that their stuff is better. The MVS guys are enhancing their systems to try to beat the brains out of the open-systems group." Whichever side ultimately wins, this software executive says, IBM does too.

Robert Ackerman, a managing partner at Infoshare, Inc., a consultancy in San Francisco, also takes a more centrist view. "If IBM went open overnight, it would be inconsistent with where their customers are." Users and IBM have to carefully manage the transition from proprietary to open, Ackerman says. "The ship of IBM will take a while to turn, but it will turn."

Ambrosio is *Computerworld's* Mid-Atlantic senior correspondent.

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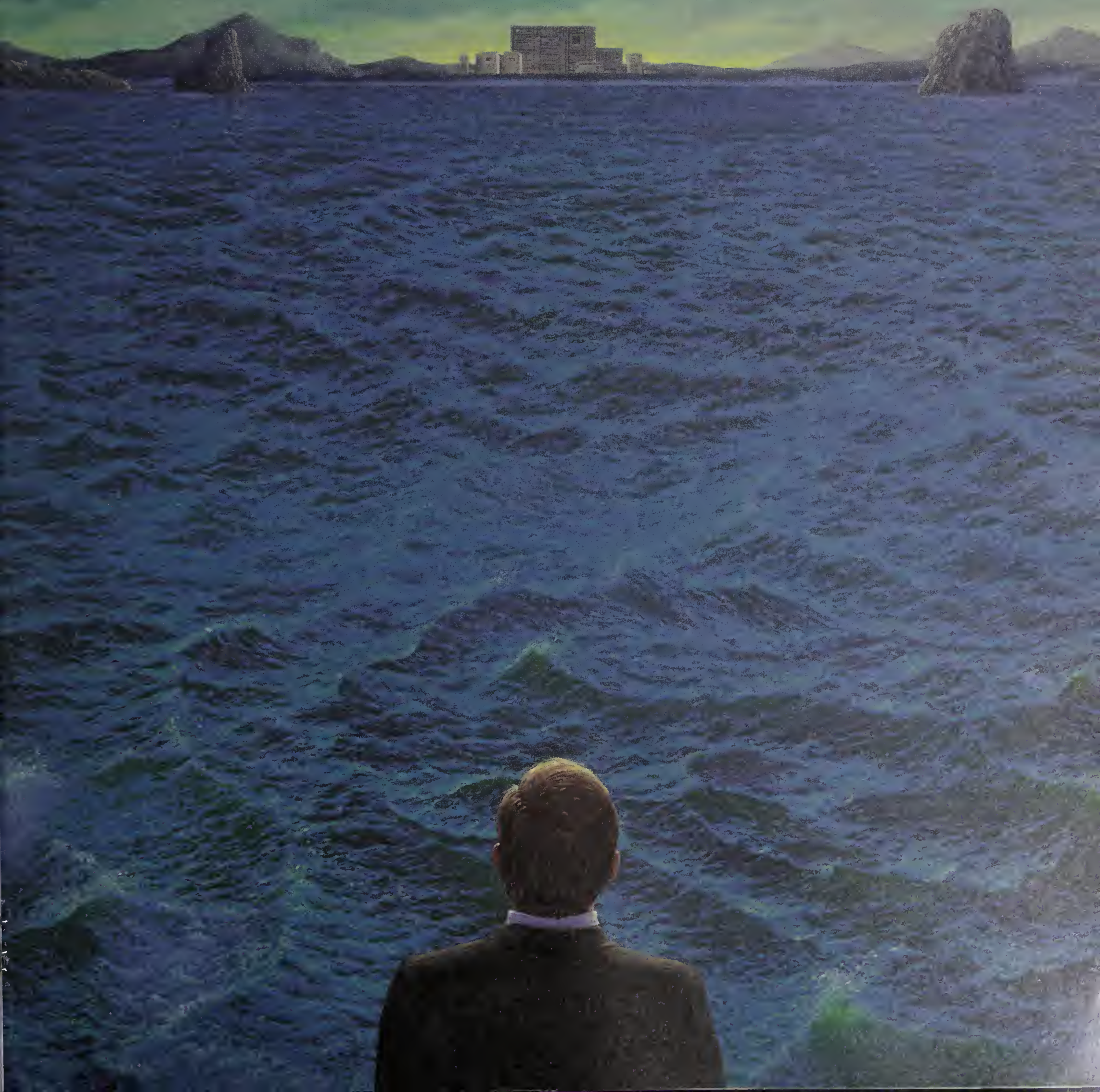
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Performance monitors to be enhanced

Landmark says Navigraph will add PC-style functions designed to increase ease of use

BY GARY H. ANTHERS
CW STAFF

VIENNA, Va. — Landmark Systems Corp. will soon unveil a product it said will bring IBM mainframe managers the ease-of-use advantages normally associated with personal computers, allowing the managers — and systems programmers and operators — to combine, display and analyze the output of Landmark's five mainframe performance monitors.

Navigraph, currently in beta testing at

several sites, comes in two linked components, one running as a file server on the mainframe and one running as a Windows application on one or more IBM Personal System/2s.

The mainframe piece downloads, on request or automatically once a minute, performance data from CICS/MVS, CICS/VSE, MVS, DB2 and VTAM environments. The PC component can graphically display the information, allowing users to see the performance of the whole machine at once.

"If you have a CICS transaction accessing DB2 using VSAM [MVS], you can combine data from all three monitors to see how the systems interact," said Raymond A. Brow, Landmark's vice president for MVS products.

"Seeing everything on one screen makes it a lot easier," said Tom Stanley, director of software services at Fort Smith, Ark.-based Beverly Enterprises, Inc., a user of Landmark's monitors for CICS, MVS and DB2 and a beta-test user of Navigraph. For example, he said, Navi-

graph was useful in diagnosing a CICS response-time problem when the cause of the problem was in DB2 or MVS.

Navigraph comes bundled with Rumba, 3270-emulation software from Wall Data, Inc. "We see the potential of PCs, but much of our customer base is back in the old 3270 world," Brow explained. "The key question for us was how to take the old-line technology and use new tools with it."

Usable, simple

Brow said usability and simplicity have been central elements of Landmark's product strategy since it introduced The Monitor for CICS — now in use at 5,000 sites worldwide — seven years ago. Navigraph complies with IBM's Common User Access standards, so it can be used with just a mouse, without commands or keys.

Navigraph plots can be printed or their data can be exported to spreadsheets or word processors. In addition to showing where problems exist, Navigraph was designed to help pinpoint the cause.

However, Stanley said he hoped future versions of Navigraph would provide more diagnostic detail or lead more easily to the detailed data in the monitors running on the mainframe. "Right now, the product gives you summary information, good for upper management for things like capacity planning. But if our CICS response time is running at five seconds, I'd like to know what transaction is running at five seconds. It would be nice if it could just pop you over to the monitor itself."

Although Navigraph is intended primarily for systems programmers and managers, it is useful for operators as well, Brow said. Landmark's IBM data center has it set up to continuously display CICS and TSO response time in the form of big dials that can be read at a glance. If the dials edge toward red zones, perhaps signaling an impending system crash, a click of the mouse will display more detailed diagnostic data.

The mainframe piece of Navigraph sells for about \$4,000 and the PC component is priced at \$1,000. Navigraph will be generally available by year's end.

Viasoft product retools Cobol

Viasoft, Inc. announced general availability of Via/Renaissance, a Cobol re-engineering tool that helps users restructure the process logic of an application as well as the data.

Via/Renaissance is based on decomposition technology, which extracts functions from an existing program, said Frank Hill, a Viasoft product manager.

"It extracts all the Cobol code necessary from the data and procedure portions [of the program] to regenerate a stand-alone Cobol program," he said.

Hill said a key aspect of Via/Renaissance is its ability to extract data without intervention from the programmer. This helps prevent the possibility of destabilizing a program, he added.

The software will be offered as part of the company's Existing Systems Workbench product line, which includes tools for analysis, editing, testing and re-engineering of Cobol programs.

Licenses start at \$48,000 for an IBM MVS environment.

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NEW PRODUCTS — HARDWARE

Data storage

Clearpoint Research Corp. has announced add-in memory upgrades for the IBM Application System/400 Models D35 and D45.

The IMME-D43 product is available in 32M-byte, 16M-byte and 8M-byte options on a single board.

Pricing for the IMME-D43 ranges from \$2,950 to \$11,800.

The company has also announced the TSB-T03, a 4mm digital audio tape backup solution for Digital Equipment Corp.'s VAXBI-based systems. It supports 1.3G-byte and 2G-byte tapes and offers an op-

tional compression feature.

Pricing for the host adapter with a single 4mm drive is \$14,500.

Clearpoint Research
35 Parkwood Drive
Hopkinton, Mass. 01748
(508) 435-2000

American Digital Systems, Inc. has announced Mastertape 4 Stacker, a 4mm digital audio tape (DAT) stacker.

The product operates an 8- or 16-cassette magazine, offering up to 96G bytes of backup storage. It supports Q-bus, Unibus, VAXBI and small computer systems interface-attached hosts and features random and sequential modes.

Pricing for the 4mm DAT stacker starts at \$9,880.

American Digital Systems
490 Boston Post Road
Sudbury, Mass. 01776
(508) 443-7711

Processors

Concurrent Computer Corp. has begun shipments of its Series 7000 line of real-time systems.

The line includes single and multiprocessor computers based on the Motorola, Inc. 68040 chip. Series 7000 systems run the company's RTU Version 6.0 real-time operating system, including a frequency-based periodic event scheduler and support for disk mirroring.

Pricing for the systems ranges from \$10,000 to \$29,900.

Concurrent Computer
106 Apple St.
Tinton Falls, N.J. 07724
(201) 758-7000

SOFTWARE

Development tools

Interport Software Corp. announced its Interbase Knowledge Gateway, an interface between the company's Interbase Reverse Engineering Workbench product and Knowledgeware, Inc.'s computer-aided software engineering tools.

The new gateway enables software engineers to load existing Cobol applications automatically into Interport's repository, transferring the information into Knowledgeware's environment for documentation, maintenance and redevelopment.

A 10-seat license is priced at \$150,000, including installation, training and one year of maintenance.

Interport Software
Suite 700
12150 E. Monument Drive
Fairfax, Va. 22033
(703) 385-1515

Talarian Corp. has released Rtworx Version 2.0, a real-time software development tool kit.

Rtworx helps display real-time data in effective ways, the company said. Version 2.0 offers a point-and-click interface for applications development, testing and debugging, as well as multiple inheritance and backward-chaining features.

Rtworx runs on VMS and Unix systems. The complete development system is priced at \$28,000, and runtime versions cost \$8,000.

Talarian
Suite 201
1043 N. Shoreline Blvd.
Mountain View, Calif. 94043
(415) 965-8050

Applications packages

Three software products for the IBM Application System/400 platform are now available from Oak Software, Inc.

Miniword, a word processor package, includes automatic pagination, a 78,000-word spelling dictionary and print preview. Miniword costs \$1,000.

File2label (\$199) prints labels from any AS/400 data file. Type2label (\$99) allows users to print labels directly from screen input.

Oak Software
P.O. Box 400
Indian Rocks Beach, Fla. 34635
(813) 596-0262

Compilers

SAS Institute, Inc. has upgraded its mainframe C language compiler.

Release 5.0 of the SAS/C compiler offers enhancements including CICS support, a full-screen debugger, long external name support and enhanced I/O support.

The product runs on IBM MVS and CMS systems. First-year licensing starts at \$4,200.

SAS Institute
SAS Campus Drive
Cary, N.C. 27513
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PCs & WORKSTATIONS

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Buyers like local firms

Every town likes to cheer on the local sports team, but does this same regionalism extend to personal computer database software companies? Researchers at **Computer Intelligence** in San Diego think so, saying that software companies can also enjoy a home court advantage. Bellevue, Wash.-based **Microrim, Inc.**, for instance, enjoys 37% penetration of Seattle metropolitan-area establishments, as opposed to 12% nationwide penetration. Similarly, Connecticut-based **Dataease International, Inc.**, with an overall U.S. penetration of 3%, has a 10% penetration in Hartford, Conn., and an 8% penetration in nearby Providence, R.I.

Borland International, Inc. has released "The World of C++," a tutorial on C++ programming. The offering consists of two one-hour videotapes, a 150-page workbook and a disk containing sample source code. According to the Scotts Valley, Calif.-based company, the new tutorial is intended for C programmers who want to learn C++.

Waiting game irks Ashton-Tate users

BY JAMES DALY
CW STAFF

In light of their firm's recent buyout of Ashton-Tate Corp., Borland International, Inc. officials are working hard to assure their newly adopted customers that investments in the Ashton-Tate product line are safe. But that has not stopped some adoptees from looking for alternatives to promised products that they suspect may never arrive.

Particularly antsy are Ashton-Tate users waiting for Dbase IV Version 1.1 Professional Compiler, used to port Dbase applications to a variety of processors and operating systems. Ashton-Tate officials have been mum about an arrival date since the announcement three years ago, and users are frustrated.

"I need it, and I'm ready for it, and I'm wondering how long they want us to wait," said Jack Bradford, a programmer at the Minnesota Department of Natural Resources in Minneapolis.

Continuation promised

Borland Chairman Philippe Kahn has said Borland will keep both Ashton-Tate's Dbase and Borland's Paradox database products alive as they take both sets of customers to a new generation of software by means of an object-oriented Dbase compiler.

However, users say they cannot base future business on vendor promises. To satisfy compiler needs, some Dbase customers

have turned to competitors' products, including Fox Software, Inc.'s Foxbase and Nantucket Corp.'s Clipper 5.0 applications development system. Both are actually interpreters but can perform compiler duties.

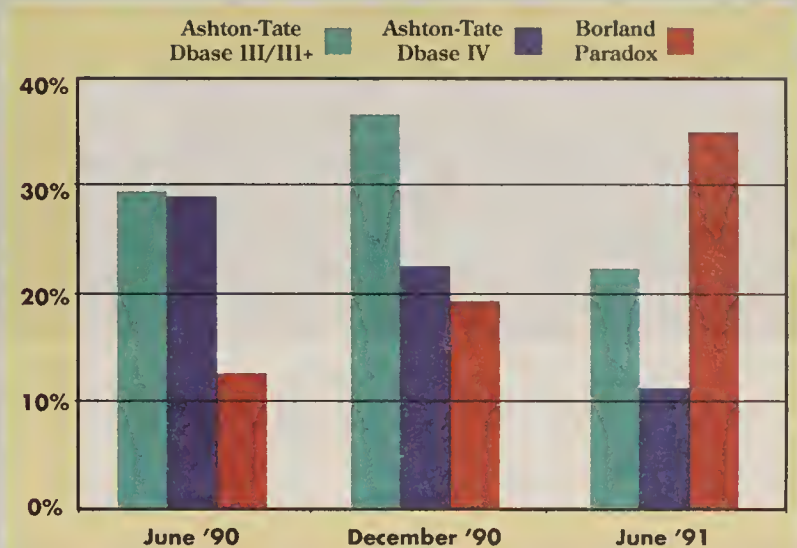
"Ashton-Tate was not fulfilling our compiler need, so we went over to Clipper and use it constantly," said Marlaine Hoffman, a programmer/analyst at the Erie County Central Police Services Department in Buffalo, N.Y.

Particularly restless are those who hung tough with Ashton-Tate during the gap between the release of the bug-laden Dbase IV Version 1.0 three years ago and the improved Version 1.1 two years later. They feel the company has not

At the top

In the corporate PC database software sector, Ashton-Tate and Borland remain the dominant figures

Percent of market share
By total number of installed packages at U.S. sites with 500 or more employees



Source: Computer Intelligence/Infocorp

CW Chart: Michael Siggins

done a good job of clearing the air about the mysterious compiler. "I'm sticking with Ashton-Tate because the other [products] miss the mark, but I just wish

they'd be a little more forthcoming with information about it," said Bill Colman, IS director at the North Carolina Department of Transportation. *Continued on page 42*

IBM imaging gets client/server spin

BY ELLIS BOOKER
CW STAFF

WHITE PLAINS, N.Y. — The client/server portion of IBM's document imaging line snapped into place two weeks ago with the announcement of Imageplus/2.

IBM already sells autonomous imaging products for its mainframes under MVS/ESA and its midrange IBM Application System/400. Even the IBM RISC System/6000 is in the game, with a system developed

by IBM equity partner Image Business Systems Corp. for IBM's AIX Unix operating system.

Nevertheless, the arrival of the local-area network-based client/server system is significant news, according to analysts, who said it reflects trends in the market.

"There are lots of mainframe and minicomputer [imaging] systems, and a lot of Unix... but there aren't that many PC LAN-based [systems]," said Dataquest, Inc. analyst Pamela Blis.

Yet the middle ground occupied by the LAN-based solutions has become the most active part of the marketplace over the past 18 months, Blis noted.

Price strategy

Clearly aware of this wind, IBM has priced Imageplus/2 quite competitively, analysts pointed out.

Other observers, however, believe there is still plenty of kick in IBM's existing products — particularly, its midrange-*Continued on page 40*

Micro Focus brings 370 Assembler to the PC!

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FIFTH GENERATION SYSTEMS, INC

Mac/Windows survey bucks market trend

BY PATRICIA KEEFE
CW STAFF

Information systems managers and users consistently preferred the Macintosh in a series of comparisons with interface rival Windows 3.0, according to blind studies sponsored by Apple.

The study results fly in the face of conventional wisdom, which finds Apple Computer, Inc. more often than not at a competitive disadvantage. In the past, Apple's graphical user interface edge was seriously dulled

12,000 PCs at another drug company; and 1,000 Macintoshes out of 20,000 PCs at a large utility.

Clearly, Macintoshes are being bought, but even Apple admits it needs to sell more. So why aren't more information systems managers buying the Macintosh? "It's more expensive, it's proprietary in an open world, and the software won't run on the platforms already on the desk," Berst said.

"The cost of a Mac is twice that for a [similar PC setup],"

In a separate study, 400 business users who were regular Macintosh or Windows 3.0 users — averaging at least five hours of PC use per week and having used the operating system for three months or more — were also queried.

Mirrored responses

A summary of the overall findings among IS managers were for the most part mirrored by the user responses:

• **Customer satisfaction:** "Significantly" more satisfaction with the Macintosh and its overall performance.

• **Performance:** A higher rating for the Macintosh's ability to run many different applications, its speed and the quality of its printed output.

• **Productivity:** A "clear edge" given to Macintoshes over PCs running Windows 3.0 for user productivity, ease of use and ease of learning basic operations and new applications.

• **Connectivity:** A consensus that it is easier to set up a small, homogeneous local-area network with Macintoshes than with PCs running Windows 3.0 and that users require "significantly less" time to learn to use a Macintosh network.

• **Administration costs:** The Macintosh received "superior" ratings for ease of installing peripherals, ease of installing and configuring new software and upgrading system software.

• **Training costs:** Training time per novice Macintosh user was found to be approximately half that required for Windows 3.0 users. Also, training costs per se, as well as the number of hours of support per user per month and installation costs, were said to be lower on the Macintosh.

Berst, who has used both platforms, quickly spotted several holes besides system costs. "Look at the questions they left out."

Most glaring, he said, was the network question. Macintoshes come with built-in network

adapters and should be easier to hook together into a small LAN, albeit with slower file transfer times, he said. But "it's harder to connect up with the rest of the company." This issue was not addressed.

Berst also maintained that recent reviews of Macintosh and

Windows versions of the same application have often rated the Windows program better.

Berst and McSharry agreed that the Macintosh still maintains an edge in ease of use, learning and installations but added that the gap is narrowing. Apple's user-friendliness reputation took a hit with the recent "painful" release of System 7.0, which has left crashed programs in its wake, Berst said.

Caere and HP pair scanning technologies under Windows

BY JAMES DALY
CW STAFF

LOS GATOS, Calif. — Caere Corp. and Hewlett-Packard Co. have paired up to produce an optical character recognition (OCR) software and hardware package that dramatically improves the recognition and resolution of colored, stained and poor-quality documents.

The combination links Caere's upgraded Omnipage Professional 2.0 OCR application with HP's Accupage technology, which employs an automatic intensity setting feature to level out areas of wildly dissimilar contrast.

There is, however, a catch: Omnipage Professional 2.0 is now available for use only with Microsoft Corp.'s Windows environment, and it must be used in conjunction with HP's Scanjet IIC scanner to take advantage of Accupage. An Apple Computer, Inc. Macintosh version is expected by the fourth quarter, at which time HP will begin to license the Accupage technology to other third-party OCR software vendors, product manager Ben Walker said.

OCR packages have become popular because of their ability to "read" nearly any form of printed text or graphic and convert it into electronic data, which can then be stored and displayed. For example, a lawyer can scan a contract needing revision directly into a personal computer and

edit it immediately rather than wait for the document to be re-typed. A scientist collecting information can scan a magazine article directly into a database.

Scanning packages signal a new era of productivity. "I'm one of those nuts who gets up at 5:30 in the morning and starts building databases," said Bruce Logan, who publishes several neighborhood publications out of the New York offices of TV Shopper, Inc. An OCR scanner "is like having a secretary available at the crack of dawn."

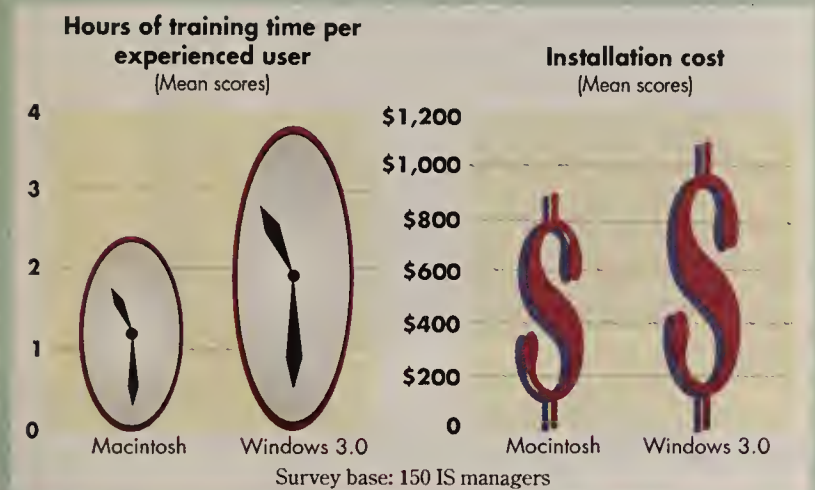
In addition to Accupage, Omnipage Professional 2.0 provides added graphics- and text-scanning capabilities though an enhanced gray-scale editor. The feature creates black-and-white line art and continuous-tone images with up to 256 shades of gray. The software also offers an improved set of editing tools, including a spell checker, a find/replace feature and a text editor.

Omnipage also guards against user sloppiness with a feature that recognizes if a document has been inserted upside-down and continues scanning an entire page.

The suggested retail price of Omnipage Professional 2.0 is \$995. Omnipage Professional 1.0 users may receive a software upgrade for \$100, while Omnipage 386 owners can upgrade for \$150. The HP Scanjet IIC lists for \$2,195 for the IBM PC model and \$1,995 for the Macintosh version.

Time and money

IS managers say that Microsoft Windows systems are more costly than Apple Macintoshes in terms of installation costs and training time



Source: Diagnostic Research, Inc.

CW Chart: Janell Genovese

by its inability to connect with the rest of the organization. Apple has since made great strides in addressing that issue, only to lose some of its graphical edge to products such as Microsoft Corp.'s Windows 3.0 and OS/2.

What the market shows

"The proof is in the market," observed Jesse Berst, editor of the "Windows Watcher" newsletter, noting the vast installed base of IBM and compatible hardware. A random scan of Fortune 1,000 companies turned up some typical scenarios in mixed shops: 800 Macintoshes out of 1,600 personal computers at a pharmaceuticals concern; 200 Macintoshes out of 1,500 PCs at a heavy-equipment manufacturer; 1,500 Macintoshes out of

said Nancy McSharry, a software analyst at International Data Corp. in San Francisco.

System cost was not offered as an attribute for comparison in the study, although training, support and installation costs were measured.

The studies were conducted by Los Angeles-based Diagnostic Research, Inc., which interviewed 150 IS managers who met the following criteria: Their companies owned at least five Macintosh systems and five Windows 3.0 systems, they were personally involved in PC equipment purchase decisions, and they were sufficiently familiar with both systems to evaluate their performance. Both systems were rated on a number of attributes on a 10-point scale.

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Jim Graves, Ford Motor Company

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IBM

FROM PAGE 35

based image solutions.

At the 300 or so Imageplus sites IBM claims worldwide, the AS/400 is leading MVS/ESA installations three to one, estimated Scott C. McCready, director of imaging systems at IDC/Avante.

McCready said he expects the AS/400 to be by far the biggest seller next year, with potential sales of 400 to 500 systems.

"It won't be until '93 that the OS/2 Presentation Manager combination will outsell the AS/400," McCready speculated.

In addition, McCready argued that the markets for the two products are not interchangeable. Imaging on the AS/400, he said, is suitable for production

applications such as insurance claim form processing where a process is image-enabled.

By comparison, "the direction of OS/2 Presentation Manager is much more of a project automation tool," he said. The LAN product, not surprisingly, will find its way into work group environments, where the final product is a document.

Imageplus/2 runs on a variety

of IBM Personal System/2s, acting as servers and clients, and under OS/2 Extended Edition and Presentation Manager. It is Systems Application Architecture (SAA)-compliant, and IBM has said it has no plans to bring forth a DOS or Microsoft Corp. Windows implementation.

For McCready, this emphasis on OS/2 is interesting, suggesting that IBM may in fact use im-

aging applications as the wedge to demonstrate to the market what it believes to be the technical merits of OS/2 over DOS and Windows.

Compatibility issue

What about connecting the varied versions of Imageplus that run on three different platforms? Currently, the point is moot because the imaging systems can-

not even exchange documents, much less leverage their compliance with SAA.

IBM has stated its intention to provide document exchange and other features among its platforms.

McCready said he expects the gateways within six months, sooner than IBM's typical two-year time frame for "statement of direction" products.

More about Imageplus

Imageplus/2 runs on an IBM Token Ring LAN with PS/2 servers (Models 80, 90 and 95) and workstations (Models 70, 90 and 95). A single PS/2 Model 80, 90 or 95 can also be configured as a stand-alone Imageplus/2 workstation.

A 10-user Imageplus/2 LAN that includes hardware, software, a laser printer, a document scanner and one of Eastman Kodak Co.'s optical jukeboxes, introduced two weeks ago, will cost about \$250,000, IBM said.

Kodak and IBM jointly developed the application programming interfaces for the product, which includes a work-flow management system for automating the routing of digitized paper documents among users.

IBM also released two new models of its 3995 Optical Library Data-servers. New optical disc jukeboxes use 5¼-in. write-once read-many cartridges and can store 94G and 20G bytes, respectively. Kodak, likewise, introduced an optical server, the Kodak Automated Disk Library Model 560/IP. It provides access to a maximum of 32G bytes of data.

Imageplus/2 will be available in December. Server software for either the LAN or the stand-alone system is priced at \$10,000. The price to image-enable a LAN-attached workstation is \$1,500 per seat, IBM said.



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Push for quality pulls in multimedia

Torrington Co.'s information kiosk meant to enhance communications

BY MICHAEL FITZGERALD
CW STAFF

TORRINGTON, Conn. — The Torrington Co., a \$1 billion division of worldwide Ingersoll-Rand Co., decided that as part of

its internal total quality management program, it needed to improve internal communications. It did not expect to use a multimedia kiosk, but the project is now in pilot stage and will go live divisionwide if it works.

After Torrington management asked the information systems department to participate in the communications project in early 1990, IS proceeded to develop an application that displayed company missives, such

as updates on health benefits, on an IBM mainframe. But, said Enrique Crespo Jr., Torrington's corporate manager of end-user computing, "they didn't use it."

"It was a good application and successful for mainframe users, but we wanted to communicate information to everyone who didn't have a computer in the company," Crespo said. Non-mainframe users were perplexed

by references to mainframe-specific keys.

Also, Torrington wanted to reach employees who do not use computers.

New beginning

Torrington's IS department went back to the drawing board and polled a dozen or so users on what they would like to see in a system.

The users specified user-friendliness as their main objective, so Torrington decided to try a multimedia application centered on an Apple Computer, Inc. Macintosh II with 8M bytes of random-access memory and a 60M-byte hard disk drive.

To create an application that allowed people to touch buttons on the screen to get information, Torrington programmers built the Torrington Employee Announcement Package (TEAP) using Macromind, Inc.'s Director package and developed a kiosk-type product with sound and video to accompany text. TEAP has color and uses both voice and music. The device currently does not use a compact disc/read-only memory drive.

Torrington piloted the single



This is the one after that.

And because the disk controllers, I/O interface, and VGA ports are built into the mainboard, there are 7 expansion slots available.

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USERS SPECIFIED user-friendliness as their main objective, so Torrington decided to try a multimedia application.

application in late May and has moved the kiosk into different areas in its headquarters facilities since then. Early results are encouraging, Crespo said.

"It enhances our communication abilities within the company, and I don't think we have begun to scratch the surface," he said.

User approved

More importantly, noncomputer users who have seen it approve of the package's direction.

"People like it. The big thing is figuring out how to keep it up to date," Crespo said.

Ideally, Torrington will tie the multimedia application into its mainframes to make for easy updating of information. Currently, updating any part of the program involves going in and changing the information by hand.

For now, "there's a lot of refining we have to do," Crespo said. The kiosk is back in IS, where programmers are fixing bugs and adding some functions to the application.

Crespo said it was unclear when, or whether, Torrington would roll out the package companywide.

Memory manager spells relief for 'RAM cram'

BY CHRISTOPHER LINDQUIST
CW STAFF

Losing your memory is a terrible thing, but as application memory requirements grow, memory restrictions — or "RAM cram" — continue to plague users.

Network drivers, terminate-and-stay-resident (TSR) utilities and device drivers often must be loaded at once to avoid time-consuming reconfigurations and reboots. Dynamic Memory Control (DMC), a memory management product from Adlersparre & Associates Consulting, Inc. in Victoria, British Columbia, provides a powerful way to get a grip on memory, ac-

cording to users.

DMC enhances MS-DOS 5.0's memory-freeing capabilities by allowing users to load and unload programs from conventional — up to 640K bytes — and high — 640K to 1M bytes — memory without rebooting. This lets users load memory-resident programs only when they are needed and remove them afterwards, freeing memory for other applications.

"I can dynamically on the fly load a RAM drive in the batch file and kick it out when I come back and give that memory back to the machine," said Al Szczawinski, senior systems technician at the British Columbia Ministry of Trans-

portation and Highways Engineering Systems. He added that the program can be launched from batch files in a menuing system, which makes it convenient to use on some 200 systems in his department.

The sentiment was echoed by others. Paula Wilson, owner of consultancy Paula Wilson Associates in Morgan Hill, Calif., said she found a use for DMC in circumventing incompatibilities between a piece of hardware and memory-resident software. When the offending board is called into use, all resident programs are removed. "Using DMC, you can load things and then unload things, and it's totally transparent to the end user," she said.

DMC can remove programs in two ways: Programs can be loaded with a sub 2K-byte "bookmark," or users can run RTSR, a utility that converts device drivers and TSRs into removable TSRs.

The product includes RTSR; a point-and-click interface; Dynamic Memory Map, a memory diagnostic tool; and a full-screen text editor. It sells for \$79.95.

Database traits move to CIM

BY KIM S. NASH
CW STAFF

TUCSON, Ariz. — Manufacturing firms using Sybase, Inc.'s flagship relational database can give shop floor users access to such Sybase features as client/server architecture and high-performance on-line transaction processing with a new manufacturing package from Interactive Information Systems, Inc.

The 18-year-old company, based here, recently announced CIIM on Sybase, a computer-integrated manufacturing application built with Sybase SQL Server development tools. The package, priced between \$25,000 and \$800,000, runs on Unix, DOS and OS/2 platforms.

CIIM stands for computer interactive integrated manufacturing, a kind of manufacturing software that is more advanced than traditional MRPII applications, said Jay Sheridan, vice president of marketing at the company.

Because the company built CIIM on Sybase with Sybase development tools, the program is reportedly fully integrated with Sybase SQL Server. Other manufacturing packages that link to databases do so through a tacked-on interface, which does not let the packages take full advantage of database features, Sheridan said.

"The other products aren't as in sync with the database because they have to go through that gateway," he explained.

CIIM on Sybase, available now, is similar to CIIM on Oracle, which was introduced in 1986.

Ashton-Tate

CONTINUED FROM PAGE 35

of Agriculture in Raleigh, N.C.

Ashton-Tate officials have been mum as to the reason for the holdup, but some users had been told that early Microsoft Corp. software libraries originally targeted for the compiler were later scrapped for libraries of Ashton-Tate's design.

Competitors are using the delivery schedule uncertainties to drum up sales. Nantucket President Larry Heimendinger said he is targeting a massive ad campaign at Dbase users who use the product for an applications development environment, something Clipper is designed specifically for. Although he said these customers account for only about 25% of all Dbase users, that number could still be significant: International Data Corp. estimates that there are approximately 3.5 million Dbase users — about 47% of the total database market.

Dave Fulton, president of Perrysburg, Ohio-based Fox Software, is also planning an offensive. "You can't let an opportunity like this go by," he said.

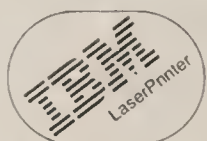
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System 7.0: Features make it worth the wait

Apple's System 7.0

| Reviews | Ease of use | File management | Memory management | Multitasking | Compatibility | Documentation | Service and support | Value | Score |
|---|-----------------------|------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------|---------------------|-----------|-------------------------------------|
| <i>Infoworld</i> 6/17/91 | Excellent | NC | Very good | Good | Very good | Very good | Very good | Excellent | More productivity horsepower |
| <i>Byte</i> 6/91 | Makes Mac even easier | Sharing feature reliable | Old limitations removed | Background tasking at all times | Favorite applications work fine | NC | NC | NC | As significant as Windows 3.0 |
| <i>Macuser</i> 6/91 | Faster to learn | Organizing files much easier | Virtual memory slower than RAM | Always runs Multifinder | Requires 2M bytes memory | NC | NC | NC | Delivers on most promises |
| Users | | | | | | | | | |
| Tom Jackson, SHR Design Communications | ■ ■ | ■ ■ | ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | Miles ahead of previous system |
| Howard Finberg, <i>The Arizona Republic</i> | ■ ■ | ■ ■ | ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | A hog; a glut of bytes |
| Rodney Ross, Resource Marketing | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | Third-party vendors caught sleeping |
| Analysts | | | | | | | | | |
| Steve Schwartz, Independent consultant | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | NC | NC | ■ ■ | 90% of my software doesn't work |
| Nick Arnett, Multimedia Computing Corp. | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | NC | ■ ■ | Great value; far more usable |
| Richard Meyeroff, Meyeroff Computer Consultants | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | Apple Events will be critical |

Key: ■ ■ Very good ■ ■ Good ■ Fair ■ Poor

Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey.
*Infoworld score based on 1-to-10 ratings. NC: No comment

Technology Analysis — A roundup of expert opinions about new products. Summary written by New Products Writer Derek Slater.

Apple Computer, Inc.'s System 7.0 operating system software is available at long last, and, according to reviewers, the result is worth the wait. The consensus of reviewers is that System 7.0 fulfills the industry's high expectations.

Key additions to previous capabilities include the following: TrueType font support, virtual memory, file sharing and multitasking. "Apple Events," which allows applications to share data by "requesting" data from one another, is another welcome feature. System 7.0 also offers enhanced networking capabilities.

Ease of use: Intuitiveness has always been a selling point for the Macintosh, but System 7.0 makes the machine's operation even easier. "Balloon Help," for those applications that support it, tags any desired object on screen with a comic book-style

| Vendor financial ratings | | | |
|---|---------------------|------------------------|---------------------------------------|
| Analysts | Long-term stability | Short-term performance | Outlook |
| Bruce Lupatkin, Hambrecht & Quist, Inc. | ■ ■ | ■ ■ | Transitional period |
| Kevin McCarthy, Mabon, Nugent & Co. | ■ ■ | ■ ■ | Sacrificing earnings for market share |

Apple Computer, Inc. reported third-quarter net sales of \$1.5 billion, compared with \$1.36 billion for the same period last year. The company reported a \$53 million net loss for the quarter, compared with \$119.7 million net income last year. The loss resulted from a onetime charge of \$224 million for restructuring, cost reduction and other activities.

"balloon" full of information on how to use that object.

File management: File selection is easy and consistent, regardless of whether users are working in Multifinder or within an application, according to *Byte*.

The "File Share" facility lets users exchange files and folders in a simple, effective peer arrangement. A more complex method of sharing files is the "Publish and Subscribe" feature, which automatically updates linked or duplicate files when a key file is altered. Like Balloon Help, Publish and Subscribe requires specific application support.

Memory management: The addition of virtual memory capabilities is more a necessity than a luxury, reviewers said, because of System 7.0's high resource requirements.

Those Macintosh systems with Motorola, Inc. 68020 processors will need to add a "Page Memory Management Unit" to take advantage of virtual memory, according to *Infoworld*.

Compatibility: Most major Macintosh applications run under System 7.0 with no problem. Some fiddling with file configuration may be necessary, though, and both the Balloon Help feature and Apple Events communications require applications that are System 7.0-savvy.

Documentation: Comprehensive manuals are included, as are pamphlets on how to install the system and work with its new features. Hypercard tutorial stacks are also shipped with System 7.0.

Service and support: *Infoworld* rated Apple's toll-free support as very good, noting that technicians were "knowledgeable and friendly." Live technical assistance is available from 6 a.m. to 5 p.m. PST. Recorded support is available 24 hours a day and is toll-free for the first 90 days after purchase.

Value: System 7.0 will be bundled with all new Macintoshes. A single-user upgrade from previous versions of Apple's system software costs \$99; group kits are also available.

Because of its ease of use, memory and file-sharing features, System 7.0 can dramatically enhance productivity on the Macintosh, reviewers said.

Apple responds

Comments from Steve Goldberg, product marketing manager:

Memory management: Macintosh users tend to run a couple of big applications: a graphics program and a word processor, for example. If they try to do too much in a limited amount of memory, then they aren't going to be happy users. I'd tell them to buy some more [random-access memory].

Overall, we're very happy with the size of System 7.0. It does take up about 4M bytes of disk space, but hard disk space is less precious than RAM, so that was less of a priority.

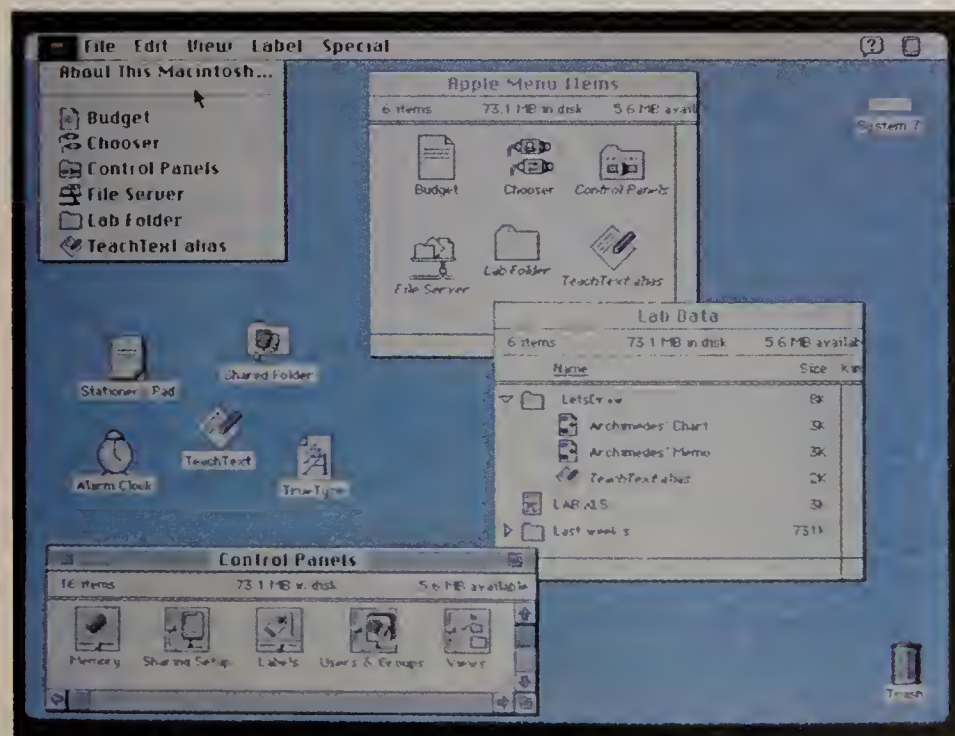
Compatibility: What I have seen and heard from customers is that compatibility is very high. Most major applications work.

What you will be seeing soon is a 7.01 release to support the new hardware that has been rumored.

Value: We're not trying to hammer a lot of utilities into the program. We try for the solution that will please 80% of the users and leave the real niche stuff to third-party developers.

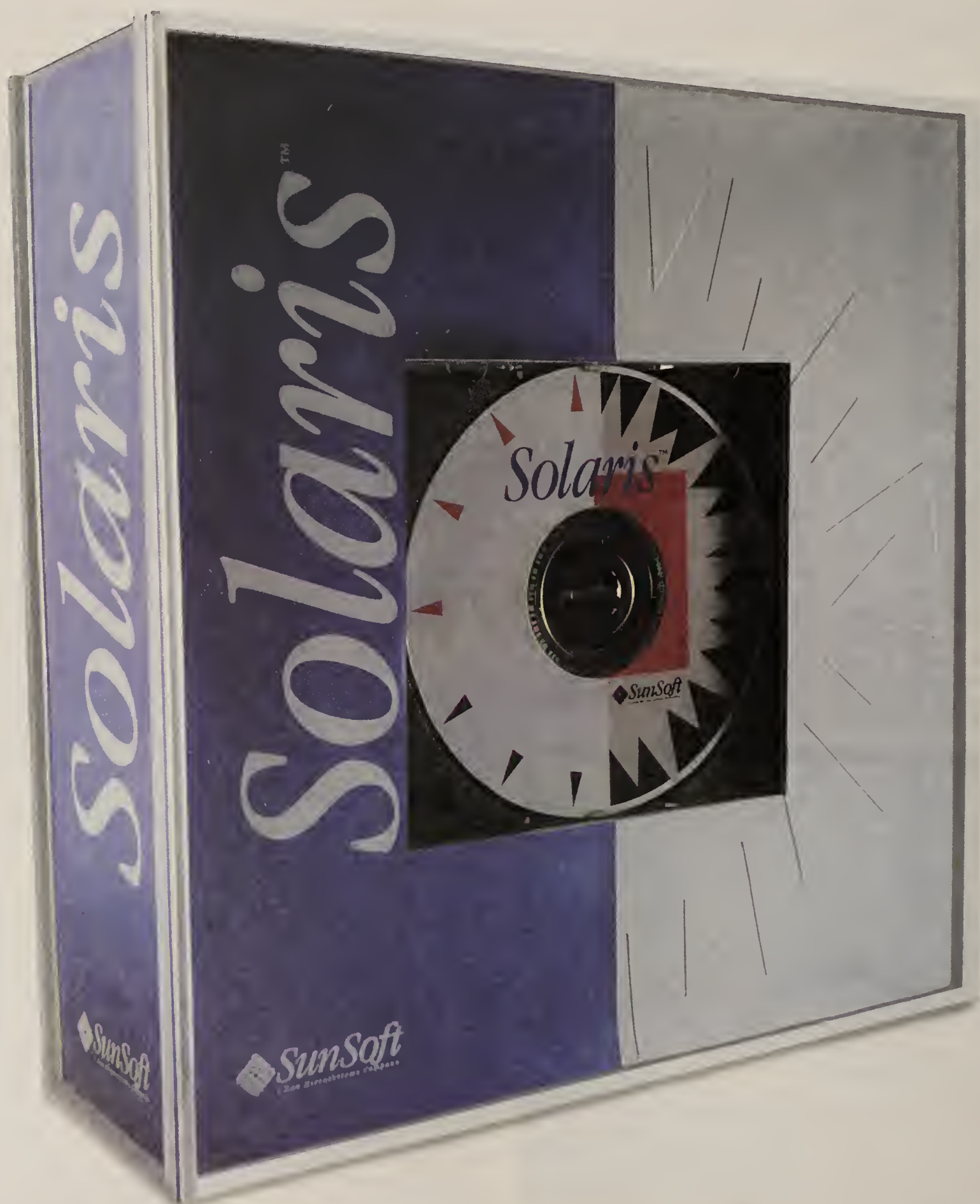
NEXT WEEK

► Flash your panache! Presentation graphics software coverage begins with analysis of IBM's Hollywood and Microsoft Corp.'s Powerpoint.



Apple's System 7.0 offers new additions such as TrueType font support, virtual memory, file sharing and multitasking capabilities

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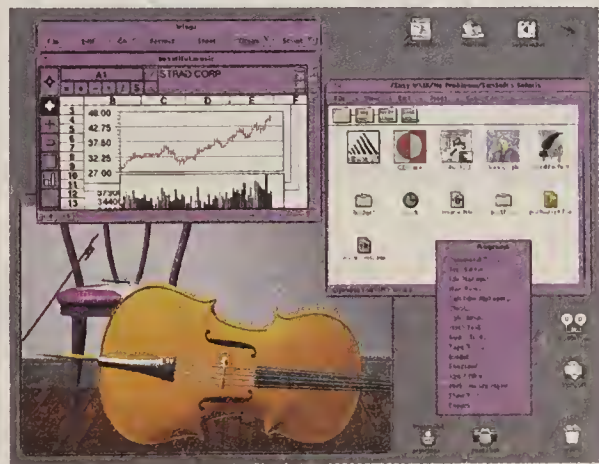
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NEW PRODUCTS

Software utilities

Softac Corp. has created K-U-I (Keyboard User Interface), a keyboard utility for Microsoft Corp.'s Windows 3.0.

K-U-I gives users keyboard control of Windows 3.0 via hot keys, application aliases and a command-line interface.

The product costs \$99.99.

Softac
23 Sunset Road
Winchester, Mass. 01890
(617) 721-1010

Funk Software, Inc. has announced the availability of Formula Editor Version 1.1, an add-in utility for Lotus Development Corp.'s 1-2-3 spreadsheet.

Formula Editor (\$99.95) writes, edits and debugs formulas in spreadsheets under Releases 2 through 2.3 of 1-2-3.

Funk Software
222 Third St.
Cambridge, Mass. 02142
(617) 497-6339

Xtree Co. has announced Version 2.5 of Xtreegold.

The hard disk management utility includes viewers for 13 graphics file formats with 256-color support. Other enhancements are speed searches, allowing the user to jump directly to a specified file or directory on the disk, and new shortcuts at the command line.

Pricing is set at \$149. Upgrades cost

\$25, including shipping.

The company has also announced Viru-safe, a product designed to eliminate known and unknown viruses. Viru-safe costs \$99 or \$49.95 for Xtreegold users.

Xtree
4330 Santa Fe Road
San Luis Obispo, Calif. 93401
(805) 541-0604

Intex Solutions, Inc. has created a set of templates for personal computer-based spreadsheets.

CFO Spreadsheet Applications are compatible with spreadsheet programs from Lotus Development Corp., Microsoft Corp. and Borland International, Inc. The four modules included are Cash Management, Tax Strategies, Capital Budgeting and Advanced Topics, with six templates in each module. They are designed to assist the user in making financial decisions quickly, according to the company.

The set costs \$299.95 or \$99.95 per module.

Intex Solutions
35 Highland Circle
Needham, Mass. 02194
(617) 449-6222

Cadman Corp. has upgraded its Viewport+ software package.

Viewport+ Release 3.0 allows users of computer-aided design (CAD) software to view customizable CAD drawings in a few seconds, the company said.

It also adds the ability to view scanned

images and overlay drawings on top of one another.

The price ranges from \$595 to \$795.

Cadman
Suite 215
223 E. Thousand Oaks Blvd.
Thousand Oaks, Calif. 91360
(805) 371-0424

Systems

Falco Data Products, Inc. has designed the GT486/40, a small-footprint graphics workstation.

The GT486/40 is based on the Intel Corp. i486 processor, boosted from 33-MHz to 40-MHz clock speed with a proprietary cooling design. It will be upgradeable to a 50-MHz chip upon availability.

The base configuration offers a 1,024-by-768-pixel resolution display, 1M byte of random-access memory, a 105M-byte hard drive and 256K bytes of system cache. It is priced at \$2,909.

Falco Data Products
440 Potrero Ave.
Sunnyvale, Calif. 94086
(408) 745-7123

Tatung Science and Technology, Inc., a subsidiary of Tatung, Inc., has announced a color workstation based on Scalable Processor Architecture technology.

The Micro Compstation 20 offers a 15-in. color monitor, a 207M-byte hard drive and 8M bytes of random-access memory.

It is priced at \$4,990. A low-end diskless model is also available.

Tatung Science and Technology
2060 Ringwood Ave.
San Jose, Calif. 95131
(408) 435-0140

Software applications packages

Pyramid Data, Inc. has created Powerleads, a contact management package for Microsoft Corp.'s Windows 3.0.

Powerleads (\$295) integrates a relational database for tracking clients and calls, the company said. It supports Windows 3.0's Dynamic Data Exchange for mail merges to word processors from Microsoft and Lotus Development Corp.

Pyramid Data
Suite 100
1000 E. William St.
Carson City, Nev. 89701
(415) 726-1722

Dataseel Software, Inc. has announced a contact management software package, Dataseel Gold, for DOS users.

The product includes a reminder function for important dates and phone calls, as well as automatic dialing, mailing label creation, duplication checking and a customizable report generator.

Introductory pricing, which is available through the end of the year, is \$179.

Dataseel Software
Suite 260
12780 High Bluff Drive
San Diego, Calif. 92130
(619) 793-2950

Peripherals

Philips Consumer Electronics Co. has announced a compact disc/read-only memory (CD-ROM) device that combines the ability to serve as a CD-ROM drive for a personal computer with the ability to function as a stand-alone CD-ROM audio player. The product, released as the Mag-

navox CDD461RS, costs \$549 including bundled software and interface card.

Philips Consumer Electronics
One Philips Drive
Knoxville, Tenn. 37914
(615) 475-8869

Radius, Inc. has introduced a dual-orientation display for personal computers.

The Full-Page Pivot display, combined with the SVGA Multiview adapter card, can be rotated 90 degrees for both vertical and horizontal display capability. Resolution is up to 1,024 by 768 pixels, with up to 107Hz refresh rates, 256 colors and 0.28mm dot pitch. The SVGA Multiview card also supports IBM Video Graphics Array multifrequency displays.

The display costs \$1,249, and the card is priced at \$449.

Radius
1710 Fortune Drive
San Jose, Calif. 95131
(408) 434-1010

Bell Computer Systems has announced the Freedom VGA, an IBM Video Graphics Array adapter card for high-performance video applications.

The card includes 1M byte of random-access memory and costs \$249. According to the company, it is the fastest VGA adapter card available.

Bell Computer Systems
6615 Valjean Ave.
Van Nuys, Calif. 91406
(818) 909-3501

Acumen Computer Systems, Inc. has announced a caching controller for personal computers running disk-intensive applications. The Acucache offers 16-bit read and write caching. It includes 512K bytes of memory, expandable to 16M bytes. Data transfer is performed at 3.3M byte/sec.

The card costs \$895.
Acumen Computer Systems
12116 Severn Way
Riverside, Calif. 92503
(714) 371-2992

Development tools

Watcom Group, Inc. has begun shipping its C8.5/386 Optimizing Compiler and Tools.

The 32-bit development system for DOS and Microsoft Corp.'s Windows 3.0 features a royalty-free 32-bit DOS extender. A development kit for true 32-bit Windows applications and dynamic link libraries is also included. The product supports a range of Intel Corp. processor-based environments, including Windows and 32-bit DOS extenders.

The compiler costs \$995. A limited-time introductory price of \$795 is offered.

Watcom
415 Phillip St.
Waterloo, Ontario, N2L 3X2
(519) 886-3700

Bytel Corp. has released Version 3.0 of Genifer.

Genifer (\$395) is a template-driven applications generator for Ashton-Tate Corp.'s Dbase. Version 3.0 offers a new user interface with windowing capabilities, a built-in screen editor and support for Nantucket Corp.'s Clipper 5.01 development environment.

Bytel
1029 Solano Ave.
Berkeley, Calif. 94706
(415) 527-1157

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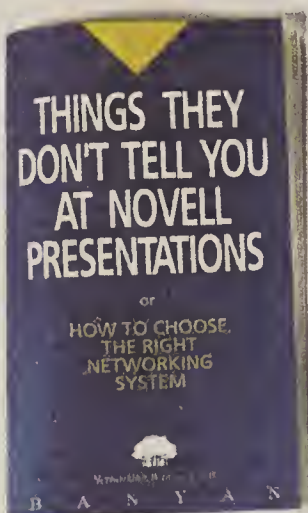
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Challengers rise to Internet

BY GARY H. ANTHERS
CW STAFF

The U.S. leads Europe and Japan in the development of high-speed data networks for research and education, but Europe and Japan have projects and plans under way that are aimed at closing the gap, according to a recent study from the U.S. General Accounting Office (GAO).

The GAO said that Europe and Japan are closely watching the progress of the U.S.'s emerging National Research and Education Network (NREN) — whose creation was approved two weeks ago by the U.S. Senate — and that a gigabit-per-second pan-European network patterned after it is a possibility. Barriers to the deployment of such a network in either region are more financial, political and organizational than technical, according to the study.

Regional and wide-area networks in the U.S. operate at T1 speeds (1.544M bit/sec.) in the U.S. and at E1 speeds (2.048M bit/sec.) in some European countries. In Japan, most networks are in the kilobits-per-second range. But the GAO said demands for speeds of 45M bit/sec. (T3) to 1G bit/sec. are being heard in all three regions, particularly from the research and education communities. Where the higher speed nets exist, they are fueling demand for products

and services to support applications such as distributed database access, large file transfer and graphics transmission.

"I see the Europeans saying they're mad as hell at the U.S. for getting ahead, and they're saying they're going to catch up," said Dan Lynch, president of Mountain View, Calif.-based Interop, Inc., an educational services company that specializes in networked computing. "The Japanese are just silent. They've gone to sleep."

European connection

Last week, three of Europe's four big computer companies, Groupe Bull in France, Siemens Nixdorf Informationssysteme AG in Germany and Ing. C. Olivetti & Co. in Italy, announced they plan to jointly build a trans-European computer network called the European Nervous System.

The companies gave few details but said they would work for "the definition and support of common methodologies and tools for software development based on open systems and standards."

However, morning may be dawning for the Japanese, who are pinning their hopes on wide deployment of fiber-optic lines. Japan announced it would invest some \$250 billion over 25 years to bring broadband Integrated Services Digital Network to

homes and businesses via fiber-optic cables. Provided by Nippon Telegraph and Telephone Corp. (NTT), the cables will move voice, data and video between people and computers.

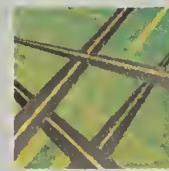
According to the GAO, the NTT network will support advanced services such as three-dimensional video, automatic translation services, portable "pocket phones" and "visual phones" with picture quality comparable to that of television.

NTT plans to fund the project from its own operating revenue, not from government sources. However, the GAO pointed out

Continued on page 55

Longer reach

The world's research and education networks are growing in size and capability, with European and Japanese networks trying to match those in the U.S.



U.S.

Internet — Connects 500,000 computers on 5,000 networks in 33 countries. Government-funded national backbones and publicly and privately funded regional nets move electronic mail and files at T1 (1.544M bit/sec.) speeds.

National Research and Education Network — In early stages of research, it will move data at speeds of 1G to 3G bit/sec.

Europe

National networks operate at speeds between 64K and 2M bit/sec. Pan-European networks operate between 4.8K and 64K bit/sec.

Japan

Most networks operate at 192K bit/sec. or less. Government-funded Science Information Network, with T1 backbone, directly links 135 universities.

Japan plans to spend \$250 billion to equip businesses and homes with broadband ISDN by the year 2015.

Source: U.S. General Accounting Office

CW Chart: Janell Genovese

IBM moves to establish open systems control

BY ELISABETH HORWITT
CW STAFF

NEW YORK — Part and parcel with IBM's "open mainframe" announcements earlier this month were networking products and services designed to put IBM — and its mainframes — in the driver's seat when it comes to integrating customers' multi-vendor enterprise systems.

By positioning its mainframes and services as pivot points for

multivendor enterprise integration, IBM hopes "not to lose control of being keeper and manager of systems functions and resources," said Doug Underhill, assistant vice president of technical services at CSX Corp.

However, even with the recent announcements, IBM's current solutions to users' multi-vendor integration problems are far from turnkey, Underhill indicated. "They remain fairly nebulous and still require consider-

able planning and in some cases rearchitecting," he emphasized.

The general intent behind IBM's announcements is to help users collect, manage, share and access information in any format on both IBM and non-IBM systems, across the enterprise, said IBM network management director William Warner.

One major new way that IBM proposes to do this is by providing one-stop shopping for enterprise integration and management, Warner said.

A new offering called Net Extra is a packaged combination of products and services to help users integrate whatever mixture of IBM and non-IBM equipment

Continued on page 53

Oxford presses wireless LAN into service

ON SITE

BY JOANIE M. WEXLER
CW STAFF

CARY, N.C. — Wireless networking has become the foundation of the Oxford University Press' distribution operations. Over the past six months, the worldwide publisher of such scholarly works as The Oxford English Dictionary has phased in radio-frequency technology where a cabled network is impossible: in the warehouse.

MIS director Randy Roch explained that the company is gaining a twofold benefit by using wireless terminals on free-roaming lift trucks coupled with scanning technology to fill and track orders from among Oxford's 15,000 titles and 6 million stocked books. He said the publisher is charting stepped-up productivity in turning orders around, and knowledgeable workers in inventory planning,

accounting and sales departments are making better, quicker decisions because of access to inventory information in the corporate database that is now updated in real time.

What was once day-old database information entered in batch mode from two storage areas has turned into real-time information because of Transmission Control Protocol/Internet Protocol (TCP/IP) support recently added to Oxford's wireless equipment from LXE, Inc. in Norcross, Ga.

Oxford runs a Digital Equipment Corp. VAX/VMS host, which speaks proprietary Decnet protocols. Oxford added Ultrix, DEC's version of the Unix operating system, to the VAX as a "translator" between Decnet and TCP/IP because Ultrix uses



Wireless equipment links the warehouse with the corporate host

TCP/IP protocols to communicate. Now the roving wireless terminals can communicate directly to the host.

"This means that your LXE equipment can communicate with what you have out there — provided you have the correct interface," explained Joanna Wolfe, technical support supervisor at Oxford.

In the warehouse, the automated process streamlines the picking process and "frees up MIS and the warehouse group from manual tracking," Roch explained. Before the wireless network, workers would fill orders by reading a paper invoice, locating a single order, then "running to a terminal and keying in a confirmation," he said. If there were not enough books in stock in the main warehouse, the invoice would then be sent on to the bulk warehouse to be completed and the process repeated.

"Now, the order goes to both places at the same time. We've drastically reduced errors by eliminating the hand-keying by scanning bar codes on the book bin," Roch said. A direct link from the terminal to a label center on each truck prints the shipping label on the spot.

Roch noted that he has re-

duced his 50-person warehouse staff by five people, and the staff spends less time tracking problems. "Our volume has increased dramatically, and the new procedures allow us to handle it without increasing staff," he said.

LXE terminals, which can be handheld or secured to mobile equipment, communicate to an antenna network located in the rafters of a facility. The antenna network is hard-wired to an interface that acts as a terminal server, which manages the message flow between the host computer and the wireless terminal network. The terminal server taps into Oxford's corporate Ethernet backbone.

Wolfe said that while Oxford's business offices, one-eighth of a mile away from the warehouse, "can pick up the signal and do work" on the wireless network, she currently does not see an application for bringing wireless media into the mainstream business network. The main reason, she said, is that the office is fairly new and "we had the luxury of cabling it from the ground up."



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¹Computerworld, 9/24/90. ²The Sierra Group, 1990.
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IBM

CONTINUED FROM PAGE 49

and software they have.

The offering includes pre-installation planning, installation, tailoring, on-site customer training and "expanded support" for multivendor network management installations based on IBM's Netview, the vendor said.

The first product within this offering, Netview Graphics and Automation, is designed to integrate IBM Systems Network Architecture networks only, according to IBM spokesman Jon Judge.

Net Extra combines the above offering with a second product called Netview Multi-Vendor Operation Offering. Scheduled for shipment Jan. 31 and priced at \$150,000, this new offering will be the foundation for Netview-based multivendor network management systems that IBM will design, install and support for Net Extra customers, the vendor said.

Net Extra is similar to IBM's Solutionpac offerings, which are "basically canned C list" programs to get users started on developing Netview-based applications, CSX's Underhill said. Customers do, indeed, need help in figuring out how to make use of Netview's increasing versatility, and that help must go beyond instructions on how to interpret the alerts the system gets from multivendor devices, he added.

Further goals

IBM also aims to provide users with "end-to-end network support" via the mainframe, Warner said. To do this, the vendor expanded its existing Workstation Data Save Facility to support Sun Microsystems, Inc. SunOS and Apple Computer, Inc. Macintosh workstations. The facility allows a VM to be programmed to back up a variety of workstations automatically and at specified intervals.

IBM also aims to extend its Systemview platform to provide end-to-end network support, Warner said.

A new product called Systemview Automated Operations Expert is said to allow users to incorporate formalized procedures and policies for responding to common systems and network events in an expert system. Automated applications based on Netview can then use the rules as the basis for responding automatically to such events, Warner said.

For example, rules can be provided for determining the most probable cause of an event and taking action that minimizes impact to high-priority systems.

Finally, IBM intends to provide users with an "integrated set" of management applications that share a "common look and feel" through common Systemview specifications, Warner said.

IBM announced SAA Common User Access 1991, a new version of the user interface protocol said to provide more icons as well as easier end-user navigation across Systemview applications.

Sometime in the fourth quarter, IBM plans to announce the data structure for Systemview, based on Open Systems Interconnect guidelines for managed objects, the vendor said.

IBM also expanded its Callpath strategy for linking its host systems to private branch exchange switches. It announced Callpath versions for CICS/MVS and CICS/VSE and for Personal System/2 workstations running OS/2 Extended or DOS and Microsoft Windows 3.0.

DEC releases details of telephony gear

BY JOANIE M. WEXLER
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. recently provided details about its new integrated call center platform [CW, Sept. 9], which builds on the company's existing Computer Integrated Telephony (CIT) product.

CIT is DEC's implementation of computer-assisted telephony technology, which allows companies to blend voice telephone calls with computer-based data applications in various ways to step up productivity and customer service. Insurance

claims processing and telemarketing workers are common users of the technology, as they need quick access to customer information while on phone calls with customers.

DEC's Callcenterplus is a platform of products, applications and integration services that create a call center environment. It blends a new version of CIT — Version 3.0 — with other DEC and third-party applications, such as fax, voice digitization, text-to-speech synthesis, voice mail and interactive caller access to computer database information.

Version 3.0 adds DEC Ultrix platforms

and telephone switches from AT&T, Ericsson, Inc. and IBM's Rolm Systems Co. to the DEC VMS computers and Northern Telecom, Inc., Mitel Corp. and Siemens AG telephone switches already interacting in the call center.

DEC said Callcenterplus components are available as individual modules or as an integrated set.

The firm also said it will customize applications for the user and provide systems integration, including project design, planning, implementation, support, management and maintenance. Callcenterplus is reportedly available now.

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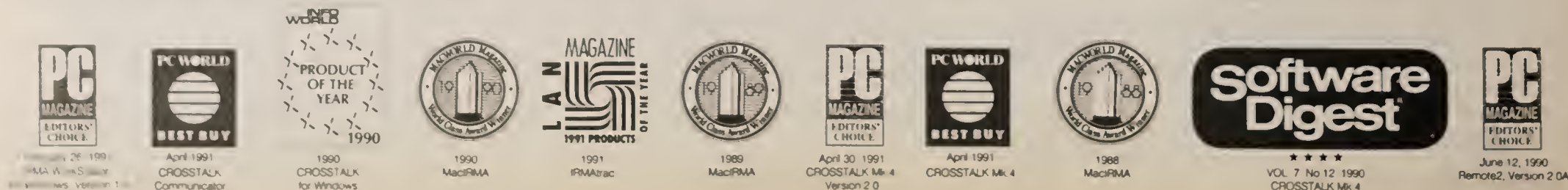
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DEC Pathworks PC products pave way to more flexibility

BY JIM NASH
CW STAFF

Support for Digital Equipment Corp.'s Pathworks personal computer networking product line is coalescing. Evidence can be found in the number of software vendors accommodating Pathworks in their own networking tools.

The end result for network managers is the flexibility to use management and security tools from a powerhouse such as

DEC with niche products from smaller players.

"DEC is trying to coexist" with the rest of the networking world, said Bob Herwick, an analyst at Hambrecht & Quist, Inc. in San Francisco. At the same time, Herwick said, the firm is willing to let other vendors fill holes in its product line.

Both Forest Computer, Inc. and Dun & Bradstreet Software recently announced support for Pathworks. A family of appli-

cations based on Microsoft Corp.'s LAN Manager network operating system, Pathworks connects operating systems such as Unix and Novell, Inc.'s Netware to DEC's VMS networking services.

Okemos, Mich.-based Forest recently updated its Connection System gateway. The product now links IBM and DEC hosts with Pathworks-, Unix- and IBM-based workstations as well as Telnet and DEC Local Area Transport terminal servers.

D&B Software, based in Framingham, Mass., said this month that it is folding Pathworks support into PC Link, its PC-to-host software. John Koles, vice president at D&B Software's DEC business unit, said he wanted to hold on to customers who might standardize on Pathworks

for all their connectivity to VAXs. Koles said the company has also added pull-down menus to its program. PC Link costs \$10,000 and is currently shipping.

The market for Pathworks is "slowly coming together," said Jim Laurie, manager of business applications at Western Digital, Inc. "Initially, Pathworks was not a high-performance product" when it was introduced about two years ago, he said. "But they have improved the heck out of it."

Laurie, who is a Pathworks user, said information systems managers are installing Pathworks for its low-level, communications protocol features but are looking to products such as D&B Software's products for more sophisticated file-transport duties.

Internet

FROM PAGE 49

that the Japanese government owns two-thirds of NTT.

According to the GAO, "If the fiber-optic cable is to be funded out of NTT's operating revenues, the plan may proceed only to the extent that consumers will pay for the services.

However, according to the NTT representative, possibly the least developed part of the project plan is the extent to which actual customer needs have been defined.

"Europeans have some homework to do as well. There, cross-border data communications are slow — at or below 64K bit/sec. — and are generally limited to the specialized needs of specific groups."

The GAO said a European user association told it that a 2M bit/sec. pan-European network capable of supporting multiple protocols is needed immediately. That would just support existing applications and would need to be expanded quickly to 38M bit/sec. to support super-

THE U.S. SHOULD not view developments overseas as competing with efforts at home.

computer modeling and multimedia conferencing, European officials said.

According to Lynch, the U.S. should not view developments overseas as competing with efforts at home. Instead, all parties should work together to build a giant Internet patterned after the global voice network. That will occur by the end of the century, after three or four more product release cycles, Lynch said. "We should help Europe and Japan simply by getting them to join the Internet."

While it will someday be technically feasible to link all computers in the world, national authorities need to shift regulatory philosophies from those that are suspicious of global data communications to those that support it, Lynch said.

The GAO said issues of funding, privacy, management and technology have to be resolved before the gigabit NREN is fully deployed: "Currently, no single entity within the federal establishment, higher education or industry is capable of ensuring the reliable and timely introduction of improved networking services, technology and capacity."

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IDC Study on UNIX OLTP

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The Transaction Processing Performance Council (TPC) was founded in 1988 to define transaction processing benchmarks and to provide performance data to the industry. Today, 40 hardware and software vendors, including AT&T, Bull, Sybase, Data General, DEC, ASK/Ingres, Fujitsu, IBM, Informix, Hewlett-Packard, NCR, Olivetti, Oracle, Pyramid, Sequent, Siemens, Sun, and Unisys are members.



TP1 vs. TPC Benchmarks

The TP1 benchmark is no longer the accepted benchmark for measuring database performance. The new TPC tests establish more complete, thorough specifications than TP1, leading to more objective, verifiable results for comparing performance between hardware systems and software products. TPC Benchmark™ A measures OLTP processing performance. TPC Benchmark™ B—similar to a batch test—focuses on database throughput.



**Data management for
open systems.**

DEC deals multivendor retail system

Decartian allows integration of diverse systems such as POS and head-office applications

BY ELLIS BOOKER
CW STAFF

MAYNARD, Mass. — Modern supermarkets and department stores are stocked with numerous computer systems, handling everything from inventory tracking to point-of-sale (POS) activity. However, from a systems standpoint, these high-tech stores can still look like a chaotic flea market, frustrating retailers that want to integrate and manage their diverse computing platforms.

Earlier this month, Digital Equipment Corp. announced Decartian, which stands for DEC Advantage for Retailers Through Integrated Applications and Networks. DEC calls the new product a comprehensive solution enabling retailers to integrate POS and head-office systems.

Easy access for all

Based on the DEC VAX, Decartian is said to allow a retailer to access applications on diverse systems. It is also expected to

pave the way for future POS devices and interfaces.

The system works by imposing a common embedded data format on all devices. Data from POS systems, regardless of protocol, is converted to the common format by Decartian. This information can then be shared or accessed by multiple systems, either at the store or at the retailer's home office.

In addition to DEC computer systems, Decartian can network systems from various vendors, including IBM, ICL and Sie-

mens Nixdorf Information Systems, Inc. DEC also promises future connections to new platforms such as NCR Corp. and Fujitsu Ltd.

To ensure reliable reporting, the DEC system automatically flags faulty POS systems and communications links, according to the company. A Help desk feature analysis activity of the store's systems provides statistical information on network performance.

Pricing for the system depends on the complexity of the installation and the type of computer hardware and networks being used.

A small system, including the Help desk feature, hardware, software, documentation and associated services, costs less than \$75,000, according to the firm.

NETWORK SHORTS

Proginet tests technology

A service bureau for developing and testing data communications technology for IBM mainframes has been announced by **Proginet Corp.** Proginet Service reportedly offers Systems Network Architecture and Open Systems Interconnect software packages from IBM and third parties.

Local-area network equipment company **Fibermux Corp.** recently licensed **Madge Networks, Inc.**'s Token Ring bridging technology to develop a module for its Crossbow intelligent wiring center. Fibermux said it expects its Token Ring bridging module to be available early next year.

Evernet Systems, Inc., a network systems integrator, said it has reached an agreement with **Lotus Development Corp.** to resell Notes, a group communications product for networked personal computers. Evernet said it will provide installation, support, consultation and training to Notes customers as well as have a certified Lotus Notes engineer available in each of its 20 branch locations throughout the U.S.

A joint effort to develop and market wireless point-of-sale systems is reportedly under way between bar-code scanner maker **Symbol Technologies, Inc.** and retail systems software supplier **Post Software International, Inc.** Under the marketing agreement, Post Software will offer customized software for use with Symbol laser scanners and portable data terminals, including products with integrated radio frequency capabilities.

International cabling specialist **Anixter Bros., Inc.** has reportedly signed up to distribute Altair, the **Motorola Radio-Telephone Systems Group's** wireless, Ethernet-compatible LAN.

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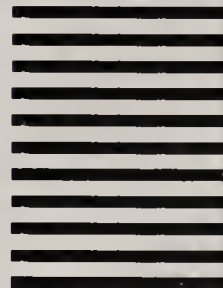


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NEW PRODUCTS

Customer-premises equipment

Network Products Corp. has created ACS2/SA, a low-cost dedicated communications server for Arcnet local-area network users.

ACS2/SA is intended for use with high-speed modems. It offers password-protected supervisory functions and can be managed from any personal computer on the network. It includes flash read-only memory-based, upgradable software.

The unit costs \$995.
Network Products
1440 W. Colorado Blvd.
Pasadena, Calif. 91105
(818) 441-6504

AT&T Paradyne has designed a data service unit/channel service unit that can be upgraded to a full T1 multiplexer.

The Acculink 731 is intended for high-speed data transmission, mainframe channel extension and videoconferencing applications, the company said. It offers T1 connectivity for up to four synchronous devices. It is supported by the firm's Comsphere 6800 network management system.

The product costs \$5,300.
AT&T Paradyne
8545 126th Ave. N.
Largo, Fla. 34649
(813) 530-2000

Network management

Fairchild Data Corp. has developed a very small-aperture terminal network management system.

The NMS2000 provides remote access and monitoring via site polling. It includes network control features and Microsoft Corp.'s Windows 3.0 graphics for ease of use, the firm said.

Pricing starts at \$25,000.
Fairchild Data
350 N. Hayden Road
Scottsdale, Ariz. 85257
(602) 949-1155

Gateways, bridges, routers

Cisco Systems, Inc. has announced links for its terminal servers to communicate over serial lines with remote X Window System terminals made by Network Computing Devices, Inc. (NCD).

Building NCD's Xremote software directly into the terminal servers eliminates the need for a dedicated modem on a networked host, Cisco reported.

The Xremote feature will be a standard feature on new servers. A free upgrade is offered to users in Cisco's software maintenance program.

Cisco Systems
1525 O'Brien Drive
Menlo Park, Calif. 94025
(415) 326-1941

Micro-to-host

Systems Center, Inc. has added NDM-PC for OS/2 to its Network Datamover line of microcomputer-to-host communications products.

NDM-PC for OS/2 automates data transfer between personal computers and mainframes. It uses data compression and a program-to-program protocol for high-

speed file transfer, the company said. It uses a Synchronous Data Link Control or Token Ring connection.

The software costs \$850 per copy.
Systems Center
1800 Alexander Bell Drive
Reston, Va. 22901
(703) 264-8000

Local-area networking software

Automation Software Consultants, Inc. has released Version 1.1 of the Network C Library for Novell, Inc.'s Netware.

The Library comprises more than 300 C language functions for applications de-

velopment. It offers access to Netware services such as accounting and file management. Version 1.1 adds IPX function calls and support for Borland International, Inc.'s Turbo C++ compiler.

Pricing is set at \$245; source code is offered for an additional \$325. Upgrades cost \$20.

Automation Software Consultants
8188 S. State Route 48
Mainville, Ohio 45039
(513) 677-0842

Local-area networking hardware

Andrew Corp. has introduced a copper repeater for extending 4M byte/sec. and 16M byte/sec. Token Ring networks.

The TRR 8416 Copper Repeater (\$1,295) supports unshielded twisted-pair wiring with RJ11 and RJ45 connectors. A version supporting shielded twisted-pair wiring with IBM data connectors (\$1,345) is also available.

The company has also announced a transparent wiring hub for connecting twin-axial devices over coaxial wiring.

The Superstar/400C connects coaxial devices to IBM Application System/400s and other midrange systems and controllers.

A single-port model costs \$695, while a dual-port version costs \$1,395.

Andrew Corp.
10500 W. 153rd St.
Orland Park, Ill. 60462
(708) 349-3300

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MANAGEMENT SHORTS

Nominees sought

Ouellette & Associates Consulting, Inc. is accepting nominations for its fourth annual Developing the Human Side of Technology Award. The award recognizes leadership in integrating people, processes and computer technology as well as using technology as a tool for positive change.

The deadline for nominations is Oct. 18. Papers should be sent to the firm at #66, 40 South River Road, Bedford, N.H. 03110. The fax number is (603) 623-4052.

Lester Marcus, coordinator for the **New York/New Jersey AIX Users Group**, has been named user envoy to IBM for the group. In this new position, Marcus will be the focal point for AIX users in the greater New York area seeking expanded access to IBM information.

Marcus is a technical marketing director at Princeton Information Ltd. in Princeton, N.J.

Guaranty Federal Savings Bank in Dallas has renewed its outsourcing contract with Systematics Information Services, Inc. in Little Rock, Ark., through 1997. Guaranty Federal has been a Systematics client since 1987.

A smaller financial institution, **Terre Haute First National Bank** in Terre Haute, Ind., also renewed an outsourcing pact with Systematics.

The bank has been a Systematics client since 1976.

Before you sign with an area recruiter, know that companies file 44% of available data processing jobs with those agencies, while the majority are posted internally or advertised in help wanted sections, according to a recent survey by **Romac & Associates**. In its survey of human resource heads at 141 U.S. companies, the Portland, Maine-based placement service also found that temporary work more often leads to a full-time position than do job fairs for recent college graduates.

The modern art of systems rebuild

Allan Ditchfield jumped to Progressive for a redesign challenge with a customer focus

BY CAROL HILDEBRAND
CW STAFF

Allan Ditchfield says one of the things that first tempted him over to The Progressive Corp. was the chance to completely redesign systems at a company growing 15% annually. But the Friday afternoon massages couldn't have hurt, either.

"I feel like an overcooked piece of spaghetti, but it's a wonderful way to relax and reduce stress," Ditchfield says, citing the free massage service as an example of the ways Progressive motivates its employees.

It took a lot more than a little hot oil and a few slaps on the back to lure MCI Communications Corp.'s former chief information officer away, however. Ditchfield made waves last March when he left the telecommunications giant to become CIO at Progressive, an auto insurance firm based in the Cleveland suburb of Mayfield Heights, Ohio. Progressive mines a highly profitable niche of high-risk insurance, such as drivers with a drunk driving charge on their records.

Ditchfield's tenure at MCI included being rated the most effective user of information systems in the *Computerworld Premier 100* for two years running. With such a track record, he says, many have thought his decision to switch both jobs and industries to be a surprising one, to say the least.

There were a couple of built-in strikes against the move at the beginning, Ditchfield says. First, the location: "Why come to Cleveland? I already know what snow is from growing



Jack Van Antwerp

Progressive's combination of corporate culture and IS-building challenges attracted Ditchfield to the high-risk insurance world

up in Boston." And second, the insurance industry: "I hated it as much as anybody else did."

Beyond these obstacles, however, Ditchfield says Progressive offered a combination of corporate culture and IS-building challenges that got his feet itchy enough to jump ship. Although he now commands an IS staff less than one-third the size of that at MCI, along with a commensurately slimmer bud-

get, he is responsible for designing a new IS architecture that can handle rapid growth — and getting it in place as quickly as possible.

Progressive's corporate strategy was completely stripped to the bone and rewritten as the company has focused more on customer data, according to Bruce Marlow, Progressive's chief operating officer. Progressive's

Continued on page 63

'Developing' the new IS structure

BY JAMES DALY
CW STAFF

If the efficiency of your information systems organization sometimes reminds you of spaghetti code, why not try to redesign it as if it were a system?

That is the theory behind the "Infrastructure Engineering" plan developed by Axis Systems International, Inc., a consulting firm in New York. Axis, which specializes in systems development methodologies and computer-aided software engineering approaches, has applied such thinking to the IS organization — complete with entity relationship diagrams of the IS infrastructure.

"Technological leaps are not an end unto themselves," said Stuart Scott, a consultant at Axis. "Investments in expensive new technology are too often wasted without commensurate investments in the IS infrastructure."

The Infrastructure Engineering

methodology is a three-phase blueprint that may, at first blush, seem like plain common sense. "We've got lots of IS people who are technical wizards but don't have any concept of how to run an organization or how their department fits into the big picture," Scott said.

Step by step

The step-by-step strategy proceeds as follows:

- Phase One: Assess the current IS infrastructure. Be honest. Define not only what is done in theory but also what is done in practice.
- Phase Two: Spell out what you want to accomplish. Compare the skill levels of key IS personnel with the objectives. Shore up weak areas. Switching personnel or rearranging organizational roles may help.
- Phase Three: Follow the plan developed in Phase Two. Many companies complete the first two phases but never implement the plan — just as many systems revamp projects are stalled before

coding begins. Strike quickly while there is momentum behind the effort. A delay is a sure sign that implementation is unlikely.

Those who have used the Infrastructure Engineering concepts are positive about its flexibility and ability to handle large problems. "We used to try to wrap our arms around the whole situation at once, but this way we were able to chop the larger problem into smaller parts and adapt our plan as needed," said Tom McGowen, a vice-president at New York Life Insurance Co., which used the plan in a revamp of its applications development organization.

Finally, each IS shop should strive for a process of continual refinement of its initial plan. A useful target would be to become 15% more productive each year, Scott said. This seemingly modest goal adds up to major long-term results. Like the ancient Chinese proverb says: A journey of a thousand miles must begin with a single step.

COMMENTARY

Clinton Wilder

A distant IS mirror



San Francisco is blessed with many secondhand bookstores, places where one can easily let the minutes melt into hours during a literary treasure hunt. In one recent visit to such an establishment, a book titled *The Computer Age — And Its Potential for Management* caught my eye. When I discovered that the original sale price of this hardcover book was \$3.95, I became very intrigued.

The book, written by editors of *Fortune* magazine, was published in 1965. On the cover, a group of executives is shown sitting in a conference room where a bar graph is projected on the front wall. The jacket copy explains, "Headquarters of the computerized corporation may someday look like this. Managers make decisions by interrogating an instructed computer, which flashes back its answers, in color and often in chart form, on a screen wall."

Thinking it would be fun to see what kind of oddball notions about the Computer Age these observers had back in those salad days, I bought the book. When I started perusing it, however, I was surprised to find that perhaps things haven't changed all that much in the past two and a half decades.

Consider the following passage:

"Some corporations, though loath to discuss the effects of the computer for quotation, regard the displacement of middle management as a harder and more persistent problem than the displacement of line employees, and farsighted ones are thinking in terms of management retraining programs."

And think about this quote from Richard Gilbert, then the "head systems man" at Mead Corp.:

"We have coordinated the divisions in systems work and in equipment purchases; everything ties in with the total system. We are thus able to centralize corporate planning functions . . . but if there is a power failure or flood, the mill manager must have the flexibility to take action as he sees best."

Say, didn't I read something like that in Ernest von Simson's "Centrally Decentralized IS Organization" article last year in *The Harvard Business Review*?

It is certainly no secret that information technology is changing at a much faster rate than the organizations that are using it. Yet it was still striking to me how many issues surrounding business computing in 1965 still ring true today. How do we get information to the managers who need it when they need it? Who should be empowered to make decisions at what levels? How are computers changing the nature of the work we do?

All this with nary a mention of PCs — let alone graphical user interfaces, client/server models, LANs, palmtop computers or even re-engineering.

It has been said over and over again, but examining this dusty 26-year-old volume proved it one more time: The tech-

nology itself is not strategic — only the information that it processes and distributes is. And when incompatible systems, ancient embedded Cobol applications and purely technical IS managers rule the roost, the technology actually becomes an impediment to the things corporations must be to gain strategic advantage: flexible, responsive, fast on their feet.

Many say downsizing is the answer. As Metropolitan Life IS chief Dan Cavanagh pointed out in these pages some weeks ago, moving from a minicomputer to PC-based environment raises all kinds of questions about network security, data ownership and a host of other issues. Downsizing, like outsourcing, is not a simple panacea, but an alternative way of doing things that brings its own set of

management challenges. Whether it is right or wrong for an organization probably depends more on how the choice is managed than on what choice is actually made.

While much of *The Computer Age* has a familiar ring, its authors predicted greater things for the IS professional than most have been able to achieve in rising to the very top rung of the corporate ladder.

"The higher order of systems and computer people should be in an even better position to know about the business than lawyers and treasurers were," the book said.

Unfortunately, business executives of the '90s do not agree with this statement. Among 200 top executives sur-

veyed by *Computerworld* earlier this year, 71% said it was either "not very likely" or "not likely at all" that their firm would be headed by someone coming out of IS.

Perhaps it is a bit reassuring, in a sea of constant technological and economic change, to realize that our organizations have not undergone as much change in the past 25 years as we might have thought. Then again, perhaps that does not speak so highly of those organizations, and it is time to redouble efforts to take full advantage of 1990s technology — an advantage that can only be gained by organizational change.

Wilder is *Computerworld*'s senior editor, management.

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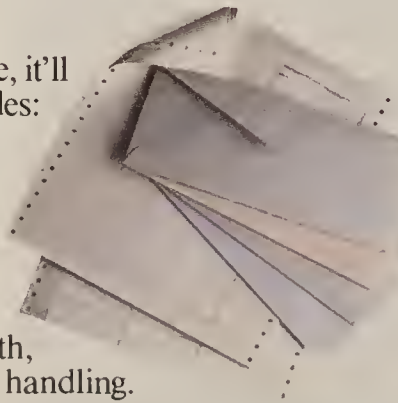
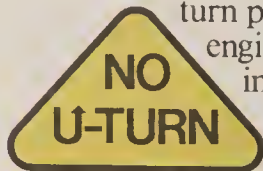
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THE STRAIGHT-PAPER-PATH,

Progressive

CONTINUED FROM PAGE 61

present system cannot handle the firm's new business thrust, he adds.

"It's not enough to know that these types of policies had \$8,000 of losses on them," he says. "We want to know, 'Was that an intersection accident? Did it happen at 2 a.m.?' — just a lot more information about the customer."

The company's search for an IS chief went on for almost a year after former Senior Vice President of IS Rex Woolf departed for a consulting career in May 1990. The search was a big challenge because the company was looking for an IS leader to work at a peer level with senior

management.

"We knew there was this major problem to be addressed," Marlow says. "The focus on the customer has profound implications for how we design the architecture for our systems. That's one of the reasons we wanted to get a senior executive."

Woolf and other executives were responsible for a five-year, \$28 million claims processing improvement project dubbed Pacman, or Progressive's Automated Claim Management. Pacman was the first result of Progressive's effort to get into better contact with the customer. The immediate response segment of the project features an adjuster on call 24 hours a day, working out of roving vans stocked with Compaq Computer Corp.

personal computers and modem links. Payment can often be issued at the accident scene.

Ditchfield's challenge is to bring the rest of the company's systems up to par with its claims system. He is concentrating on what he calls "customer delight," or making the policy issuance, billing and other client-oriented IS segments as flexible and responsive as possible. "People might say, 'Well, claims is world class,' but if somebody is having trouble getting a policy written with us, what good is claims?" he says.

Getting feedback from those on the front lines is vital to building systems reflecting the true needs of clients. Since his arrival, Ditchfield has picked up dotted-line relationships with the sales and cus-

tomers service functions.

Progressive, with 16 highly decentralized operating divisions, uses Ditchfield to represent those two groups at the corporate operating committee, helping to formulate strategy in those areas. Besides the claims staff, he says, sales and customer service have the biggest amount of interaction with policyholders. "I absolutely know it will make my IS function customer-focused," he says.

Faster service targeted

One area of concentration for the IS division is policy issuance. Progressive sells policies through a network of 50,000 independent agents, and Ditchfield says he would like to give those agents with computers instant access to such things as verification of a car's vehicle identification number. The ultimate aim is to allow a customer to walk out of an agent's door with a policy in hand. The IS staff is currently working on seven-day, 24-hour customer data availability for agents.

Progressive's plan to branch out into the standard auto insurance market also factors into the IS group's long-term plans. The architecture has to handle a much larger amount of data as the company moves into standard auto, as well as to link data on a customer with more than one policy.

Ditchfield has already made his presence felt, according to Marlow. The IS department budget and planning review was just completed and was easily the best yet for the IS staff, he says.

"They prepared on the important business issues and presented them in a way that somebody outside IS can have some idea of what the topic is," he says. "We have to attribute that completely to the leadership."

Marlow says that Ditchfield ran into a bit of corporate culture shock in his early days at Progressive. The insurer has a looser management style than MCI's command-and-control structure. "For the first couple of weeks, I think he was wondering when we were going to come down and check his underwear size," he says.

Donuts!

One of Allan Ditchfield's best-known MCI idiosyncracies materialized at Progressive almost as fast as it takes to dunk a raised cruller into a morning cup of java.

"Donuts with Ditch" — a session in Ditchfield's office in which he provides the breakfast goodies and his staff supplies the brainstorming — was an instant hit at his new digs at Progressive.

Sometimes a particular work group might be invited to hash over new ideas while gobbling, and sometimes it is whoever drops in.

The idea seems to have caught on fast. One of the first things that Ditchfield's staff did, Chief Operating Officer Bruce Marlow said, was present him with a token of their esteem: a potted tree festooned with a large variety of his trademark nosh.

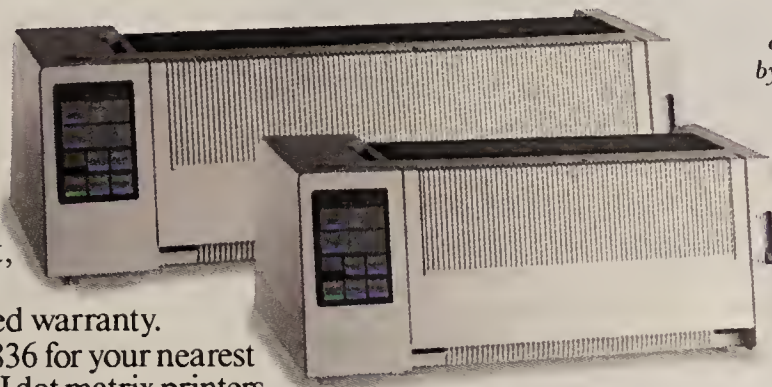
CAROL HILDEBRAND

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CALENDAR

The next meeting of Guide International, the midrange to large systems IBM user group, will be held Nov. 17-22 in New Orleans.

With the theme "Building Solutions for Tomorrow . . . Today," Guide '91 will feature more than 1,200 technical and management sessions in IS management issues, applications development, business applications, telecommunications, database and systems software.

For more information or to register, contact Guide headquarters in Chicago at (312) 644-6610.

OCT. 13-19

Universe Symposium. Denver, Oct. 13-15 — Contact: Vivian Levin, Universe Symposium, Yardley, Pa. (215) 743-2985.

Creating the Business-Responsive IT Organization. London, Oct. 14-16 — Contact: United Communications Group, Rockville, Md. (301) 816-8950.

Technetron '91/Pace '91. Boston, Oct. 14-17 — Contact: U.S. Society of Wang Users, Chicago, Ill. (708) 652-3888.

Operations and Systems Management Forum. Grapevine, Texas, Oct. 15-16 — Contact: Megan Senete, New Science Associates, Inc., Southport, Conn. (203) 259-1661.

CD-ROM Expo. Washington, D.C., Oct. 15-17 — Contact: World Expo Corp., Framingham, Mass. (508) 820-8123.

Communications Managers Association (CMA) Telecom '91. New York, Oct. 15-17 — Contact: CMA, Bernardsville, N.J. (908) 766-3824.

Networld '91. Dallas, Oct. 15-17 — Contact: Mark A. Haviland, Bruno Bleinheim, Inc., Englewood Cliffs, N.J. (201) 569-8542.

11th Annual Eastern American NCR Users Conference. Atlantic City, Oct. 16-18 — Contact: Frank Whalon, Tinius Olsen Testing Machines, Willow Grove, Pa. (215) 675-7104.

EIS '91/Canada. Toronto, Oct. 16-18 — Contact: Emily Thomas, The EIS Registrar, Newton, Mass. (617) 964-4555.

Consulting: Building IS Partnerships. Cambridge, Mass., Oct. 16-18 — Contact: Mette Skillings, CSC Index Institute, Cambridge, Mass. (617) 499-1874.

Northwest Systems Conference. Portland, Ore., Oct. 16-18 — Contact: Lisa Lee, Association for Systems Management, Portland, Ore. (503) 243-6238.

Educum '91. San Diego, Oct. 16-19 — Contact: Andrea Fagin, Educum, Washington, D.C. (202) 872-4200.

IPO/ISO Meeting. Houston, Oct. 16-25 — Contact: National Computer Graphics Association, Fairfax, Va. (703) 698-9600.

Strategic Data Management Forum. Grapevine, Texas, Oct. 17-18 — Contact: Megan Senete, New Science Associates, Inc., Southport, Conn. (203) 259-1661.

International Society for Hybrid Microelectronics (ISHM) Symposium. San Francisco, Oct. 19-21 — Contact: ISHM Meetings Department, Reston, Va. (703) 471-0066.

OCT. 20-26

Sixth Annual Strategic Issues Conference. Cambridge, Mass., Oct. 21-22 — Contact: Decision Support Technology, Inc., Cambridge, Mass. (617) 354-6400.

Comdex/Fall '91. Las Vegas, Oct. 21-25 — Contact: The Interface Group, Needham, Mass. (617) 449-6600.

Knowledgeshare '91. Orlando, Fla., Oct. 20-24 — Contact: AI Corp., Waltham, Mass. (617) 891-6500.

APICS International Conference and Exposition. Seattle, Oct. 20-25 — Contact: APICS Meetings Registration, Falls Church, Va. (703) 237-8585.

Rebuilding for Software Automation with the 4 R's of CASE. Atlanta, Oct. 21-23 — Contact: Extended Intelligence, Inc., Chicago, Ill. (312) 346-7090.

Alex. Brown & Sons, Inc. 12th Annual Technology Seminar. Baltimore, Oct. 21-23 — Contact: Lorri Bresnick, Alex. Brown & Sons, Baltimore, Md. (301) 727-1700.

Systems '91. Munich, Germany, Oct. 21-26 — Contact: Gerald Kallman, Kallman Associates, Ridgewood, N.J. (201) 652-7070.

Cimdex. Detroit, Oct. 22-24 — Contact: Dan Belmont, Cahners Exposition Group, Stamford, Conn. (203) 352-8372.

Enhanced Network Service Customer Premises Equipment: Defining the Future. Nashville, Oct. 24-25 — Contact: Research First Consulting, Inc., Birmingham, Ala. (919) 687-0908.

EDI User Group Meeting. Atlanta, Oct. 24-25 — Contact: Uniform Code Council, Dayton, Ohio (513) 435-3870.

13th Annual Computer Law Institute. New York, Oct. 24-25 — Contact: Practising Law Institute, New York, N.Y. (212) 765-5700.

Lasers in Graphics/Electronic Design in Print (LIG/EDP). Tarpon Springs, Fla., Oct. 26-31 — Contact: LIG/EDP, Vista, Calif. (619) 758-9460.

OCT. 27-NOV. 2

Repository AD/Cycle International Users Group. Chicago, Oct. 27-30 — Contact: Repository AD/Cycle International Users Group Headquarters, Chicago, Ill. (312) 527-6666.

Building the HRM Data Model. Arlington, Va., Oct. 28 — Contact: Association of Human Resource Systems Professionals, Dallas, Texas (214) 661-3727.

The Hammer Re-engineering Conference. Boston, Oct. 28-30 — Contact: Hammer Forum, Cambridge, Mass. (617) 354-5555.

Electronic Messaging '91: Taking Care of Business. New Orleans, Oct. 28-30 — Contact: Electronic Mail Association, Arlington, Va. (703) 875-8620.

CMC '91 and A/E/C Systems. Nashville, Oct. 28-31 — Contact: Kelly Baxter, A/E/C Systems, Chadds Ford, Pa. (215) 444-9583.

Symposium '91. Lake Buena Vista, Fla., Oct. 28-Nov. 1 — Contact: Ashley Pearce, Gartner Group, Stamford, Conn. (203) 967-6757.

1991 Marketing Conference. New York, Oct. 29-30 — Contact: The Conference Board, New York, N.Y. (212) 339-0290.

Unix Expo International. New York, Oct. 30-Nov. 1 — Contact: National Blenheim Expositions, New York, N.Y. (212) 391-9111.



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EXECUTIVE REPORT

MARKETING IS

Knock, knock — it's IS calling

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Steven Lewis

Kaman's Smith asks questions to ensure IS projects are relevant

BY ARIELLE EMMETT

Joseph Larizza says his job these days is "pure selling." A vice president at Service America Corp., a \$1 billion food services and vending machine company, Larizza spends much of his day speaking one-on-one with the company president and senior vice presidents, as well as with operations management, regional vice presidents and district managers.

What's unusual is that Larizza is not a marketing or sales executive but the vice president of MIS at the Stamford, Conn., firm. When he's done selling management on a new plan to computerize old-fashioned paper-based accounting systems, he'll move on to talk with end users. "You've got to make sales calls on your users, whether daily or weekly," he says, "and understand what their needs and requirements are. You've got to see if you can formulate ideas with them."

Larizza is a good example of what is quickly becoming a must-have information systems skill today: sales and marketing ability. Increased competition for corporate funding and the need to more closely align technology initiatives with business goals have made the ability to successfully market IS projects inside the corporation a necessity.

Unlike the go-go 1980s, when technology projects were often easily approved by technology-shy executives, IS professionals now must justify

themselves in ways unimaginable only a few years ago.

"Our mission in life is one of selling our ideas and our systems to line operations," declares Thomas J. O'Toole, director of communications systems at Pittsburgh-based Westinghouse Electric Corp.'s Communications Division.

One major reason for the new emphasis on internal marketing is a growing expectation by corporate management that IS develop applications that will provide competitive breakthroughs and make money.

Another factor, notes L. Paul Ouellette, president of Ouellette & Associates Consulting, Inc., is that the way in which corporations deploy technology has changed drastically over the last five years. "The whole ball game has changed in terms of power, management and ownership of what was traditionally IS," says Ouellette, whose Bedford, N.H., consulting firm offers a seminar

called "Marketing the Value of IS Internally." As a result, Ouellette continues, IS can no longer see itself as a "pocket of expertise." Because they must now compete with outsourcing vendors, many IS groups need to "start behaving as an independent consulting organization." This means actively marketing services, creating an awareness of the value of IS and learning a broad range of skills in consulting, communications and negotiation, says Ouellette, who is the author of a new book on the subject.

The new breed of IS manager understands the necessity of making money and promotes technology accordingly, says Hugh McDonald, a consultant at International Computers Ltd. (ICL), an information technology company based in the UK.

Novel approaches

All of these recessionary realities are starting to produce creative new approaches to promoting technology.

At Metropolitan Life Insurance Co. in New York, for example, key decision makers are courted with seminars and summer reading lists, one-on-one meetings and dynamic presentations.

"There have been a fair number of questions raised about the return on investment in technology," says Robert Flast, Met Life's vice president of IS. "In the past, the thinking was, 'Do the same thing better.' Now, maybe the thinking is, 'Either don't do it at all, or do something different.'"

To lobby for projects, Flast makes sure information is available to every manager who can help

Continued on page 66



**Marketing
your services**

KEY POINTS

► Heavy competition for corporate funding and the growing popularity of outsourcing are making sales acumen key for IS managers.

► Smart IS chiefs are learning the value of internal marketing and are brushing up on consulting, communication, negotiation and promotional skills.

► At Metropolitan Life Insurance Co., key decision makers are made more technology-aware through a wide range of educational offerings (see story page 68).

► Despite a growing awareness of the importance of internal sales and marketing, consultants say IS managers must develop a better understanding of their corporations' culture.

► Back-scratching and bartering can be powerful tools for building influence, according to the authors of *Influence Without Authority* (see story page 67).

► QUOTABLE:

"Every IS department is a PR firm."

L. Paul Ouellette
Ouellette & Associates
Consulting, Inc.

Emmett is a free-lance writer based in Hewitt, N.J.

Continued from page 65

out, "from CEOs to project managers to the systems organization." Ultimately, he said, IS will survive only if it adapts to the money-making, competitive heartbeat of business.

At Kaman Aerospace in Bloomfield, Conn., MIS director Eugene M. Smith uses what could be described as a "Socratic hammerhead" approach to make sure that the IS projects he's promoting are relevant to the business: Ask pointed questions about business goals while chipping away management assumptions and misapprehensions about technology.

For example, Smith spent the past year asking questions about Kaman's business objectives. His inquiry included interviews with top executives and more than 40 middle managers about Kaman's strategic priorities.

"I asked crucial questions such as, 'What kinds of strategies do we want to employ to compete?'" Smith says. "As I posed the questions, I showed where they bounced against the

Wheel of fortunes

IS groups need to look at the 10 areas below to make internal marketing plans fly



Source: Ouellette & Associates Consulting, Inc.

CW Chart: Michael Siggins

existing [IS strategic] plan."

Apparently, the approach worked: Kaman business management refocused on needed IS applications and made a new schedule of priorities, Smith

says. Within three months, a quality-control group composed of representatives from each functional branch of the company developed a new IS plan. Smith was appointed liaison between the committee and executive management.

"The parochial barriers that were in place were dropped," Smith says. "Rather than vested interests, [it was] what was best for Kaman Aerospace."

If selling IS projects is easy, Larizza says, it's because an IS manager has done some resourceful thinking. He says the first step in this thinking process is to assess a firm's "readiness mode."

He adds, "You have to look at the organization and [see whether] it's in a strictly maintenance mode or is in a mode of developing new systems."

Teamwork theme

A common theme that runs through the suggestions of many IS managers is teaming with end users.

Selling a technology idea is a bit like fishing, says John Serfass, a former personal computer and communications network manager at Preferred Health Care, Inc. and now president of Preferred Systems, Inc., a spin-off software and networking company in Wilton, Conn.

To be successful, Serfass says, you must plop a worm in the water, wait for an interested crowd to gather, then reel in. "That's the key — the fact that it's not just my idea but everybody's idea," he explains.

Serfass isn't telling fish stories. While creating a \$2.5 million, 350-node local-area network, Serfass' team decided the best strategy was to focus on creating desire for an electronic mail system.

"Rather than ram the system through the company," Serfass recalls, the group decided to promote the fact that E-mail would be offered. Once the benefit to the company was established,

business managers signed on, and the idea gained momentum, he says. Today, the system handles 1.5 million messages a day, he adds.

"Rarely do you come up with a good idea by yourself first," Serfass says. "An idea is usually not complete until you talk to someone else, take criticism and compliments and meld [different managers'] ideas with your own."

The moral? "Be sure that everyone who's affected by the IS idea has a vested interest in it," he advises. "It means one-on-one sessions, really brainstorming sessions, and it touches all areas of the enterprise."

Selling users first is "the best way" to gain acceptance for an idea, Larizza agrees. While Larizza says his job at Service America has been made easier because top management supports computerization of manual procedures, user support is nonetheless key.

IS managers generally agree that finding an executive "champion" is a key step in selling an

several different strategies to communicate IS ideas across the company.

For example, instead of proposing a broad revamping of technologies, Flast gave short, focused presentations last summer on a handful of key projects. The result was the recent adoption of a high-value, high-visibility artificial intelligence system.

Westinghouse Electric's O'Toole also believes in an environmental approach. "It's very difficult to sell technology these days," he says. As a result, what "we're trying to do is look at things more on an applications basis . . . to align ourselves to the individual lines of business." That kind of shift makes sense, O'Toole adds, because individual business units are increasingly driving the company's direction.

More to come

Despite such new tactics, consultants say that most IS groups have a long way to go before they become anything close to slick marketers.

G. Evans Bruner, president of



Rate your IS marketing skill

- ☐ T ☐ F We have a realistic, long-range plan for assessing and meeting our client goals.
- ☐ T ☐ F We easily find excellent instructors and speakers, develop new workbook materials and design new brochures.
- ☐ T ☐ F We know our position in the corporation, and we have established ourselves well enough to ward off competitors (internal and external).
- ☐ T ☐ F Our IS marketing communications materials (printed and unprinted) are tops.
- ☐ T ☐ F We consistently test our marketing ideas (meaningful, measurable, projectable quantities) and programs, always trying to improve our position with a new approach.
- ☐ T ☐ F Our services offer top-quality, exclusive features distinguishing us from other IS service centers.
- ☐ T ☐ F We track our clients' technology use and technology awareness and use this information to bring improved services to our clients.
- ☐ T ☐ F We have developed a profile of our clients with all of their important characteristics (e.g., application, life cycle, size, job function, resources, benefits sought, problems, client status, loyalty status, decision process, attitude and sensitivity) and update it regularly.
- ☐ T ☐ F We have seriously considered several forms of marketing communications (e.g., user coordinators, external publications, management reporting, newsletters) to make our clients aware of our value-added services.
- ☐ T ☐ F We have tested to determine how price-sensitive our services and markets are with our prospects and clients.
- ☐ T ☐ F We are acutely aware of the latest and most successful approaches for marketing the IS organization internally.
- ☐ T ☐ F We know our numbers (e.g., opportunity, marketing, variable and overhead costs; break-even points; the relationship between costs), and we use those numbers for planning our IS marketing strategy.
- ☐ T ☐ F We have a consistent and thorough system for eliciting information, as well as suggestions and evaluations, from all of our clients.
- ☐ T ☐ F We have an IS professional development curriculum that consistently produces top-notch marketing- and client-oriented professionals.

The score

- 0 - 3 Marketing is an unknown in your organization.
- 4 - 7 Marketing plays a minor role.
- 8 - 10 Marketing is recognized, but it is not a force.
- 11 - 13 Marketing is taken seriously. A formal marketing plan is advised.
- 14 Marketing know-how is evident. IS is recognized as an integral business asset.

Source: Ouellette & Associates Consulting, Inc.

CW Chart: Janell Genovese

The action funnel

Asking specific, focused questions helps turn good ideas into workable plans



Source: Ouellette & Associates Consulting, Inc.

CW Chart: Michael Siggins

idea. In fact, they say that identifying a friendly executive is half the battle.

"Once they have been identified," Serfass says, "you want to be sure that they see tangible progress quickly. You have to ensure that you have the resources ready to be able to respond quickly to any suggestion they may have."

Insiders give immediate feedback and help modify a systems proposal before it becomes general knowledge within the company, managers say.

Intense management education is a must, Flast says, especially training that instills awareness of technology issues and business opportunities (see story page 68).

Flast, a former head of technology strategy at American Express Co., spent his first six months at Met Life "aggressively making time to see as many people as possible." He also used

Bruner Consulting Associates, Inc., an IS consultancy in Bridgeport, Conn., says IS must do a much better job of understanding the cultural nuances of both corporate departments and management teams if it is going to succeed in selling technology ideas.

ICL's McDonald adds that IS has a long way to go to overcome what he terms the "boiler-house syndrome." He says, "Top management sees IS as some sort of boiler house where a bunch of weird techies go screwing around." A group with such an image lacks sales credibility, he adds.

Ouellette says IS people need to rise above the daily grind and start thinking about "what the audience is and how to put a strategy in place."

Only when IS realizes that "everyone is a PR firm," Ouellette says, will powerful sales efforts be possible. •

INTERVIEW

Lack clout? Barter smarter

Co-author of Influence Without Authority says IS managers can advance their causes by learning to trade

How do you get your ideas accepted and projects rolling when you have no official "pull" with heads of other departments or the top executive? Instead of wasting time on power games, try adopting more of a service attitude, advise Allan R. Cohen and David L. Bradford, authors of *Influence Without Authority* (John Wiley & Sons, Inc., 1990).

In the book, the pair says that back-scratching and bartering can be powerful tools for building influence. Cohen, dean of the School of Management at Babson College in Wellesley, Mass., and Bradford, a professor of management at Stanford University in Stanford, Calif., say working closely with peers in other departments makes especially good sense for information systems managers, whose tradition has been one of isolation.

Also the authors of *Managing for Excellence*, Cohen and Bradford run seminars and consult with leading Fortune 500 companies on organizational issues. Computer-world sent free-lance writer Glenn Rifkin to ask Cohen what else IS can do to increase its influence.

Q Are there occasions when it's appropriate for an IS person to play hardball?

A I'd say just the opposite. One of the fundamental problems IS people have these days is that they still think in terms of power. And that has blinded them to distributed processing, to supporting people who want PCs, to figuring out how to enhance the capacity of managers to make the decisions and get the information instead of controlling it all.

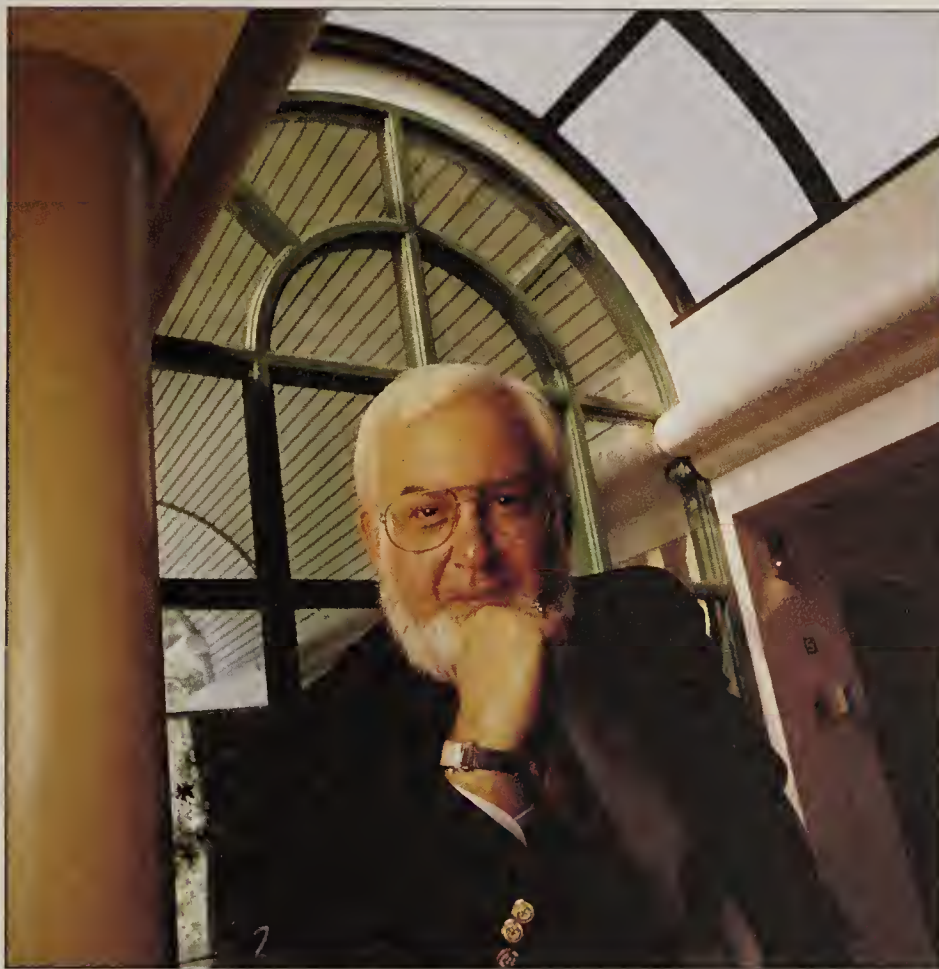
The surest way to lose power and influence is to try to hang on to it by controlling everything.

Q So how can someone who is technically oriented, and possibly introverted, gain influence within a corporation?

A People get influence by figuring out what's important to other people and what others need to get their work done. Then they figure out their own needs and, in essence, make a trade.

Q That's fine, except historically, IS has had an isolationist and sometimes adversarial role with others in the organization.

A One starting place is to get out and ask people, 'How are we do-



Steven Lewis

Cohen says the surest way to lose influence is to try to control everything

ing, and how can we do it better?' A number of IS people just don't ask. And when they are told, unsolicited, they get defensive.

Also, the IS person has to be very good at sticking with the manager who doesn't want to give the time up front to define the parameters of what he needs. That's part of the job — coming back to managers and saying: 'If I respond to the request you give me, you won't be satisfied, and here's why,' rather than just saying, 'OK, it's what you asked for.'

Q Are there alliances that an IS person should pursue within the organization, such as with the chief financial officer or the chief operating officer?

A It varies from organization to organization. You should have alliances with everybody. Having friends is one way to get influence, but it's not the only way. Having enemies, however, almost guarantees that you won't. The problem with the concept of winning friends and influencing people as it came from Dale Carnegie is that it had a very manipulative tone. You insincerely pretended interest to make people think you liked them.

Q What's the alternative?

A If you can figure out where technology offers your company the

highest payoff, then the functions most centrally involved with that are probably the natural allies to start with. For example, if having a marketing intelligence system is going to give your company competitive advantage, the marketing manager is a natural ally. But you can't make one strategic alliance and ignore others.

Q Suppose a new IS manager comes into a situation in which his predecessor has left a trail of tears, false promises and failed projects?

A It's not hard to repair the damage. Just think: How can I do something that will show immediate results so they get the sense that this is a different kind of organization?

The starting point is to go out to people and say, 'I get the sense that you are not happy with what was done before. I need to understand how this organization screwed up, what it is that would help you do your work, how I'll know whether we're doing better and whether we can agree on any indicators that make sense so that we'll be able to monitor it together.'

Q What about a case in which the IS manager has everyone except the chief executive officer buying into a huge project? How do you get him to come on board?

A I'd start by making sure that everyone who has bought into the idea knows that everyone else has bought in. They are more likely to stand up to the CEO collectively than individually.

You've got to perform a very careful diagnosis on the CEO. What are the hooks that will get him to pay attention? What does he care about?

Q IS people often find themselves confronted with CEOs focused only on return on investment and payback. How do you influence a CEO like that?

A If you're in an organization where payback or financial measures are what people look at first, then every proposal should have those measures attached to it.

But there are lots of technology investments that yield bigger payoffs from intangibles than from tangibles. So now the question is, how do you turn intangible stuff into things that are hard-nosed and useful?

There are ways to do it. You can go around to internal users and say, 'If we can turn around reports in a day instead of a week, what would that let you do differently? What kinds of decisions could you make? How would you go about doing your business differently?'

Q What happens to the IS manager who refuses to change?

A I once observed an IS manager in an executive committee meeting who essentially opted out of all discussions that didn't involve computers. The executive group would talk about how to deal with new competition, about the acquisition of a major competitor and what that might do or how to get new products through the pipeline faster. And the IS manager would just sit and look out the window. Pretty soon, people treated him as a lightweight.

Q There's also another danger because technology has evolved so much that in many cases, users don't even need IS people any more.

A That's right. Smart information managers say to themselves, 'There is still going to be a very valuable role for me and my people. We need to help the company explore what can be distributed and what needs to be central. We're going to need to figure out what software is useful, what you can buy off the shelf.'

The kiss of death for IS managers is to try to hold on to power and use it on people. •



"It's easier to discover deficiency than to see value." — Hegel

"Nothing can have value without

Points for would-be IS marketers to ponder

being an object of utility." — Karl Marx

"You need not hang up the ivy branch over the wine that will sell." — Publius Syrus, Maxim 968

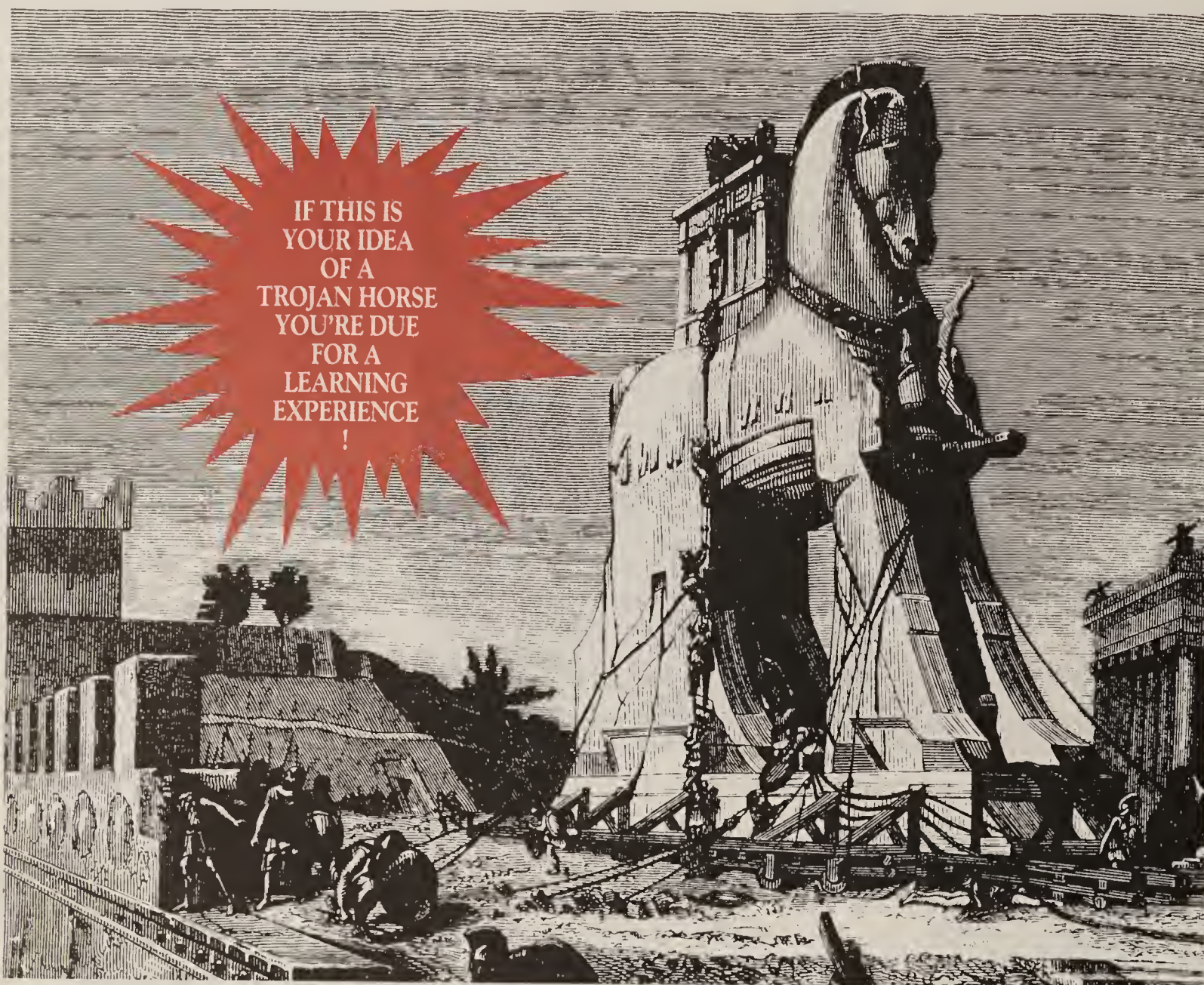
"I will buy with you, sell with

you, talk with you, walk with you, and so following." — Shakespeare, *The Merchant of Venice*, I-iii, 34

"The buyer needs a hundred eyes, the seller not one." — George Herbert, *Jacula Prudentum* (1651), No. 390

"His name was George F. Babbitt, and he was nimble in the calling of selling houses for more than people could afford to pay." — Sinclair Lewis, *Babbitt*

"Buying and selling is essentially antisocial." — Edward Bellamy, *Looking Backward, 2000-1887*



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Top-notch teaching tips

As if wearing a salesperson's hat wasn't enough, Met Life's IS chief also wears a teacher's cap.

Robert Flast, vice president of IS at the New York insurer, says he loathes the common belief that trying to teach business managers about technology is a waste of time.

To support technology marketing efforts, Flast uses a number of educational techniques. One is called "competitive technology watch assessments." With this approach, senior managers are able to see how competitors can be tracked by looking at information from many sources.

Once ideas are formed, Flast disseminates them via the aggressive use of outside speakers. Senior managers attend seminars that focus on the business aspects of particular technologies.

"For a broader base of executives, get well-regarded speakers such as Arno Penzias, James Brian Quinn or Michael Scott Morton two or three times a year," he says.

Met Life also publishes an in-house journal, *Perspectives on Technology*, compiles a list of book abstracts for management use and lends the books.

When a key manager reads an important book that may lead to a decision about technology, Flast says, it represents a "tiny victory" that can have enormous implications.

Such tactics can go a long way toward giving new IS ideas legitimacy because they endorse a solution to a problem in which they have no stake, says John Sifonis, a vice president at Temple, Barker and Sloane, Inc.

To Flast, it's simply the right thing to do. "Even though [IS and business] cultures are different, there is a high degree of respect for the business leaders within the company," he says, "that extends to their capacity, tolerance and interest in learning more about technology opportunities."

ARIELLE EMMETT

Software piecework

Modular development and delivery of complex applications gives users needed functionality sooner and enhances learning and productivity

BY W. BURRY FOSS

Software productivity has become one of the leading concerns of American business. The pressure on the information systems department to deliver new and often very complex applications is becoming more intense as businesses change rapidly and competition sharpens in every industry.

The slow delivery times and uncertain quality of delivered software is worrisome. Most companies can quote examples of systems development projects that never seem to end and whose costs increase many times over original estimates. Studies of large software development projects have revealed that the original scope of work can expand up to 50% as new requirements are uncovered and software defects removed. These problems can cause significant schedule overruns.

Runaway projects are a source of concern for IS managers and their customers. They

Foss is president of Gellman, Hayward, Inc., a Stamford, Conn.-based management consulting firm specializing in information technology.

destroy the reputation of IS, frustrate customers and alienate senior management.

Old habits die hard

If systems development staffs are ever going to catch up and keep pace with business requirements, they must change the way they think about software projects. The traditional idea that computer applications must be built in a single mammoth developmental push is hampering real progress.

The fact is that software systems are not monoliths. Even though systems are built as if all the pieces were put in place simultaneously, a closer look reveals that they consist of multiple modules, which can be delivered in pieces.

Delivering software functionality to customers early, often and in a piecemeal fashion gives users needed functionality sooner and enhances learning and productivity in an organization. Such a process accelerates the developer's understanding of the business and the user's ability to learn to apply the enabling technology effectively.

When the focus of developers is on a clearly specified modular component and a delivery date, the scope of work is reduced. Because working with one small part of the project is less complex, IS staffers can take the time to understand business requirements and meet customer expectations. For the user, dealing with smaller parts of a larger system and participating in its development make learning the new technology less daunting.

IS and user learning is thus accelerated, and both groups become more productive.

Development and delivery of subsequent pieces of the system get easier because the development team has studied user feedback from the initial release and can deliver what is needed and expected. Hence, development staff does less rework, and costs are reduced from 20% to 50%.

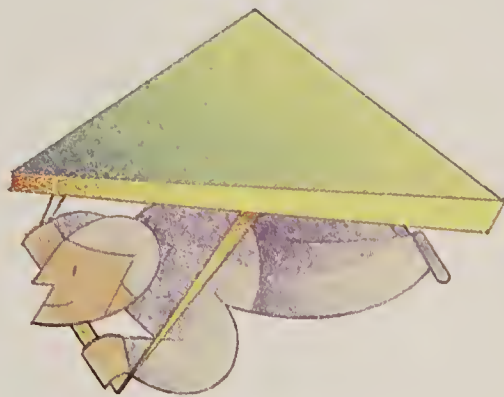
Early delivery creates a sense of accomplishment and well-being in both customers and project teams and increases the motivation to continue the process.

Get out of ruts

The old way of doing things is detrimental to learning and productivity.

When information systems are delivered all at once, productivity increases do not show up until the end of the project — sometimes years into the future. At that point, when confronted with the real rate of progress of the project, a company may have to deal with the unpleasant surprise of being behind schedule.

With shorter delivery cycles, actual productivity is visible ear-



ly and consistently. Moreover, because of the effort needed to meet customer demands at delivery time, a complete understanding of the software requirement takes place, accelerating the learning process.

Extending a delivery date is also ill-advised. An MIT study found that if a schedule is lengthened, work expands to fill the extra time. Thus, productivity decreases.

Creating more and shorter deadlines focused on functionality useful to the customer should keep the development staff working up to capacity. Those deadlines should be well-planned and tied to logical breaks and module separations. Otherwise, the company will end up with poor-quality software and a demoralized project team.

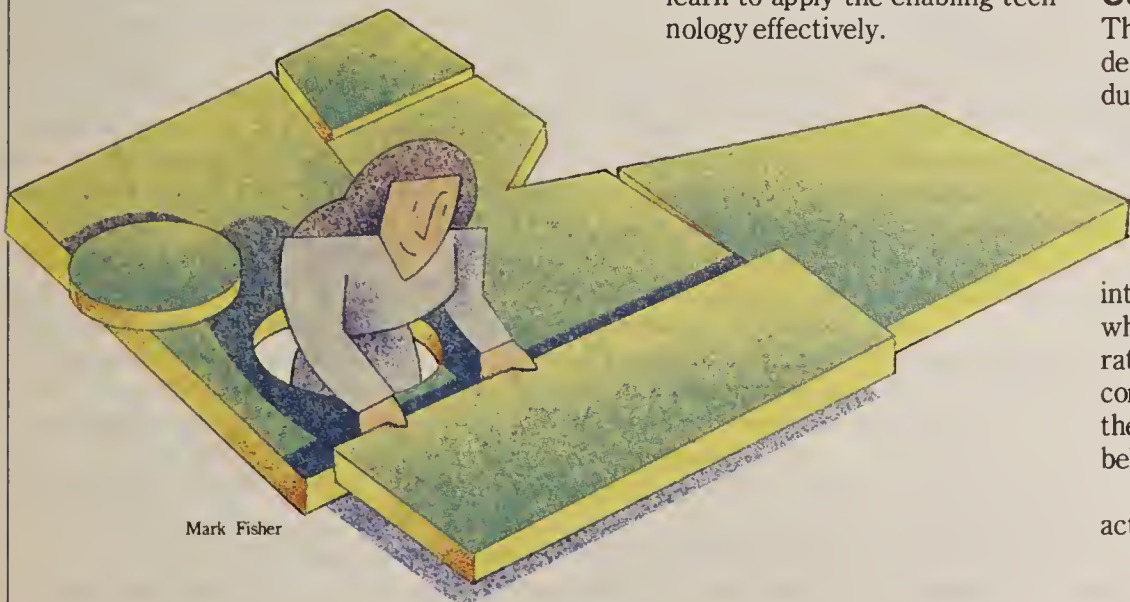
A prescription for change

How can the development staff go about breaking large applications into manageable pieces? The following steps are crucial:

- Prepare a data architecture that can be modularized around subject area databases. This permits construction of manageable pieces even within highly integrated applications.

With a properly planned data architecture, systems can be delivered in meaningful units designed to meet individual business needs while following the integration strategy in a data

Continued on page 70



Mark Fisher

- **Less rework means 20% to 50% savings**
- **How to break applications into pieces**
- **Clearing up development misconceptions**

Continued from page 69

plan. The creation of subject area databases organizes data into manageable units. Databases and the integrated systems that use the data can be implemented one at a time.

One company, for example, developed a data architecture plan that identified data entities and index keys for most of its business processes. It then began to build applications supporting the marketing function because of a critical need in that area. At the same time, the data plan was used as a blueprint for systems supporting distribution and transportation.

Although the systems accessed common data entities, there wasn't any confusion because the plan showed how the data was to be collected and maintained in only one of the many applications using it.

It is important to implement databases first because they are the heart of an information system. Once databases are created, edited and maintained, other functions using the data can be delivered one piece at a time.

- **Design the development project so the end product is delivered in releases.** Releases should match the business need and customer "attention span" — the time interval between deliveries tolerable to a customer. Systems analysts can gauge the customer's attention span by his reaction to previous project delivery times and his level of satisfaction with accelerated delivery.

The typical attention span for most systems development projects varies between three and

Long-held beliefs slow effective development

The idea of developing software in manageable pieces and implementing it in a series of deliverables is not new. Software vendors have been delivering their products in releases for years. However, the idea that business systems should be delivered this way *is* new. To gain acceptance of this new process, IS must eradicate its long-standing misconceptions that protect the status quo — systems delivered in their entirety at the expense of learning.

Systems development groups have these misconceptions:

- **Customers prefer only one implementation activity at a time.** In reality, if a project is designed to deliver key system functions in a planned sequence the customer agrees on, more than one implementation becomes acceptable to him. What customer wouldn't accept more than one implementation activity if he could obtain one of two key components in six months instead of waiting a year for both?

- **More than one incremental delivery adds steps to the implementation process and increases the cost of implementation.** In reality, the learning accelerations that occur by implementing a smaller, focused set of functions speed delivery of later releases and compensate for the multiple training, conversion and implementation activities that happen with each delivery.

For example, a retail company refined its basic processes of training, conversion, acceptance and cutover as part of the installation of the payroll portion of its new personnel system. The overall personnel system was delivered later using the same processes and was installed in significantly less time.

The development staff must be careful about delivering in too many steps, however. Delivering too often will add cost to the im-

plementation and will take away the benefits of learning acceleration. Incremental deliveries must be chosen with care.

- **Customers will only be satisfied with complete, onetime delivery.** Developers seldom stop to ask the customer if it may be more useful to receive part of the system as a first implementation. More often than not, users would be happy with earlier than expected partial delivery of needed resources.

- **Systems development methodologies are always beneficial.** Some systems development methodologies were developed in the early 1970s to gain control of the creative process. But these methods recommend a monolithic and highly structured series of steps that follow a sequential means of design and development.

Phased development with management checkpoints at each stage had management appeal when introduced because expensive coding was not started until specifications were approved, and design was not begun until requirements were identified.

Unfortunately, the linear nature of many systems development methodologies stifles learning. It is only when a development team can reiterate the process through the development stages, refine the product as it emerges and learn how to meet the customer need that satisfactory systems result.

- **Deadlines are sacred.** Developers live in fear of having to reshape a project to better meet customer needs under the pressure of deadlines. However, deadlines are often artificially imposed by managers to create a sense of urgency rather than to set realistic parameters for delivery to customers. Deadlines are important, but they should be set by the project team. They should be viewed as a series of achievable goals. In this way, making a deadline creates a sense of accomplishment that contributes to productivity.

12 months. Customers that are in volatile businesses or that have had a poor working relationship with the IS department usually have short attention spans. Customers that have had a positive technology experience or have received satisfactory IS service typically have longer attention spans.

The attention span in one governmental organization, for example, was short. So IS deliv-

ered a municipal taxation system in a series of releases over six months, starting with the production of assessment forms and followed by data collection functions and then assessment notices. Because software delivery was matched to the business cycle, the components were there when field inspectors and taxation authorities were ready to use them.

- Use modern development soft-

ware, such as computer-aided software engineering (CASE) tools, prototyping aids and application generators. Such prototyping methods help make the logical separations in a large project more visible for planning purposes. CASE tools with data planning capability are helpful in identifying modular subject areas that may lend themselves to stand-alone implementation as part of a release sequence.

Using prototyping methods as part of the design process also helps accelerate learning. Application generators and CASE tools with screen-painting facilities make it possible to show the application design to the customer interactively as the design evolves. IS can use this early feedback to ensure the design is correct.

Moreover, because the tools

Continued on page 74

Rethinking the project development cycle

Segmenting its project helped energy firm speed software delivery by 40%

BY W. BURRY FOSS

In 1990, managers at a Houston-based energy company knew they had to accelerate the delivery of oil and gas production and marketing applications. The applications were large, ranging in cost from \$3 million to more than \$30 million each.

Competitive market pressures and an increase in the demand for government reporting made the company's two- to three-year development cycles intolerable. Business changes were forcing the company to redesign and do significant maintenance before the systems were completed. As a result, users

were unable to respond adequately to business changes.

At the time, systems were developed according to a standard phased development cycle, beginning with a business case, then proceeding to requirements identification, specification, design, construction and implementation. Senior managers in the systems division wanted a change. They zeroed in on accelerating the systems development cycle.

In one project, for example, IS was developing a system designed to speed the collection and validation of gas revenue allocations. This system was part of a gas accounting replacement program. The application had reached the end of its specification stage after a year of work, and implementation was planned for the following year. At the start of construction, the project team set a goal to deliver about 40% of the functionality to six gas plants. The system would ultimately be installed in 60 plants.

The early delivery took place

in four months. The remaining functionality was then installed in all 60 gas plants three months later — a five-month acceleration of the original schedule.

What accounts for the dramatic acceleration? One reason is high motivation on the part of team members and customers.

More importantly, customers and developers learned how to deliver key subsystems quickly because they were focused on only part of the whole system. In the gas accounting case, they were delivering to six carefully chosen plant managers who were helpful in making sure the initial system was implemented smoothly.

By thinking differently about the development process, the gas accounting project team also greatly enhanced the quality of the product. By working with users, IS found that the on-line screens associated with data entry, processing and inquiry could be developed from a common template. This reduced the number of screens. Once the template was tested, other screens could be replicated quickly.

It was then a straightforward

process to implement the remaining functionality into all of the gas plants in three months.

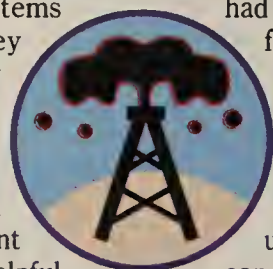
But the entire project did not go smoothly, mainly because the project team implemented the acceleration process after the project was already a year old.

First of all, the project team found that data that was to be converted was inaccurate and had to be edited and verified. Although unanticipated, this work was completed within the original time frame.

Furthermore, because the team had used conventional, linear methods to prepare application specifications — documenting processing and information requirements and conducting customer reviews of the documented designs — rework was needed.

These methods had not uncovered certain hidden requirements, which emerged only when construction was greatly advanced.

Hence, although the delivery schedule was accelerated by more than 40%, costs were not reduced in the same proportion because of the rework. •



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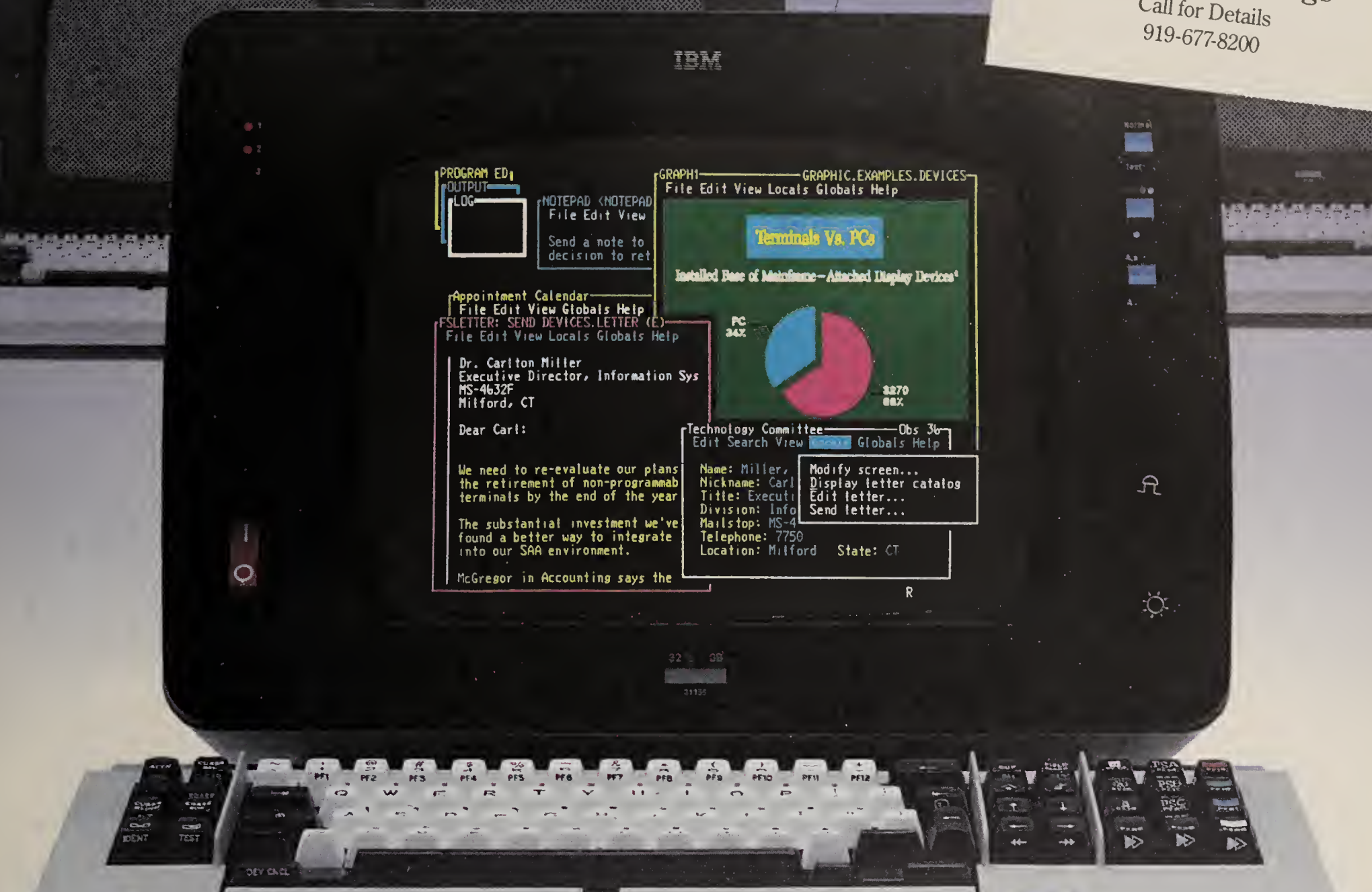
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have some redeeming value.
January 1.



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IBM

Continued from page 70

have the ability to simulate the look and feel of the final system, the customer can provide his approval in the context of a functioning system.

One distribution company, for example, completed an order entry subsystem as part of a major inventory management system in half the time of conventional development.

The IS staff developed a structured design using data-flow diagramming and, at the same time, developed a prototype of the on-line system.

The data-flow analysis provided a completeness and consistency check, and the prototype shaped the design from a customer point of view. The prototype included menus, screen flows, data entry

and editing procedures and inquiry displays. Literals were used for data representation until a skeleton database was able to provide actual data to the screens in the prototype.

With this visual approach, the customer was able to see the externals of the system and provide feedback on data presentation, edit rules and logic flows.

- Consider delivery to a subset of end users with high readiness — those willing to work with a first delivery. System components supporting self-contained subject areas can often be delivered discretely.

At one company, IS delivered the purchase order subsystem of a large inventory management system first to provide needed support to a newly centralized group of buyers willing to work with it.

Later, less urgent components such as requisition planning, links to vendor systems and product catalogs were implemented.

- Capture the experience from each delivery and transfer the knowledge to teams that creatively explore methods of accelerating learning.

- Use common systems components (preferably objects) whenever possible to take advantage of reusability and to improve quality.

- Reduce rework by implementing quality assurance techniques, and learn from them. The same principles can be used to accelerate results from these methods by increasing the pace of learning.

When technology is delivered early and frequently, customers derive an earlier

business benefit and get relief from the business pressures that develop in the absence of the system.

If a customer receives even part of a system in five months instead of a year, then his motivation for the application increases. The satisfaction of seeing some usable functionality improves the customer's confidence in the development team and renews his commitment to the project.

An increase in customer motivation is contagious, resulting in increased project team productivity. The early delivery represented by the first release increases the pace of the project, causing the productivity increases to appear sooner.

Thus, the cycle of increased pace/increased customer satisfaction/increased productivity/increased pace is positively reinforced.

The resulting process keeps productivity and the delivery pace elevated. •



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Even pros make mistakes

Problems in the software development process are not unique to the in-house IS department. Poor interaction with users and the drawbacks of wholesale systems development and delivery can affect software contractors as well.

A pipeline firm had prepared a preliminary requirements document for a \$2 million real-time product flow tracking system. The document was not sufficient to specify the real information needs of the system, nor did the software contractor have the skills to elicit missing requirements from the customer. The contractor proceeded to develop design specifications in writing, acknowledging gaps existed.

The customer did not understand how the material-flow processes were linked in the specification and was unable to visualize the overall scope of the application. During meetings, the customer and contractor identified more than 70 issues that required resolution before a complete specification could be prepared.

In addition to the specification problem, the contractor insisted on delivering the system as a whole, even though the system contained modular subsystems that could have been delivered individually.

The project team prepared detailed specifications for the entire system without testing them with the customer until complete. Inevitably, they had to be reworked.

The diffusion of effort in dealing with the whole system rather than manageable pieces of it, combined with the lack of a coherent specification that the customer could approve, caused the one-year deadline to slip by a year.



COMPUTER INDUSTRY

NATIONAL BRIEFS

Syn'd against, not sinning

► A California Superior Court jury earlier this month ruled in favor of **Sematech** in a breach of contract suit filed by **Syn Labs, Inc.**, formerly of Sunnyvale, Calif. Syn Labs had charged the semiconductor research consortium with breach of contract and misappropriation of trade secrets.

Bell honored

► Industry veteran **Gordon Bell** went to Washington, D.C., last week to receive the **National Medal of Technology** from President Bush. Bell, who is credited as the architect of some 50 computers, including **Digital Equipment Corp.**'s flagship VAX, follows a blue-ribbon list of predecessors into what has been described as the Hall of Fame for technological excellence: The National Medal has gone to the likes of Gordon Moore, Stevens Jobs and Wozniak, David Packard and the late Robert Noyce.

Taking stake

► **Kyocera Corp.**, a \$3 billion technology company based in Japan, took a 10-year, \$4.5 million equity stake in Tyngsboro, Mass.-based imaging company **Laserdata, Inc.** earlier this month. Kyocera plans to market Laserdata imaging products internationally.

Read this deal Rite

► **Read-Rite Corp.** earlier this month filed its initial public offering with the Securities and Exchange Commission. The Milpitas, Calif.-based maker of disk drive recording heads said it plans to offer 4.4 million shares — 4.1 million of which are newly issued — at a price between \$11 and \$13 per share.

Novell on track to be first \$1 B LAN firm

BY JIM NASH
CW STAFF

If any revenue number in business is magic, it is \$1 billion — the dollar sign of a company's "arrival."

Huzzahs greeted Microsoft Corp.'s arrival as a true industry power last year, when it became the first personal computer software maker to record \$1 billion in net sales.

Now Novell, Inc. is racing — with little competition — to be the first PC networking company to reach that same milestone. According to several computer-industry observers, the Provo, Utah-based firm could top \$1 billion in less than two years. The chief debate seems to be whether that event will be an indication of Novell's prowess or a road map of the unusual opportunities it has in the market today.

Conservative math on Novell's part indicates it will pull in \$600 million in sales for the fiscal year ending Oct. 31. "It is fair to expect us to have 20% to 30% growth year to year for the foreseeable future," said Peter Troop, head of Novell's investor relations department. If his projection is on the mark, that puts Novell over the fence as early as October 1993.

IS directors interviewed by

Continued on page 76

Novell heading toward Billionaire's Row

IS directors interviewed by Computerworld flagged several issues that could speed the networking player or cause it to stumble as it heads past the \$600 million post toward the \$1 billion barrier — depending on how Novell deals with its customers



SERVICE

For example, cleaning up existing print server problems.

SUPPORT

Making progress — but don't stop now.

ARROGANCE

Listen to end users and do as they say.

FOCUS

Avoid adventures in distracting market areas.

CW Chart: Michael Siggins

HP still reluctant to cede loner status

BY J. A. SAVAGE
CW STAFF

CUPERTINO, Calif. — Hewlett-Packard Co. burst free from the solitariness of the proprietary mind-set in the late 1980s. Yet while other companies swirl around it forming major partnerships — IBM and Apple Computer, Inc., for example — or configuring consortia such as the Advanced Computing Environment, HP still appears to be a loner in the reduced instruction set computing (RISC) market.

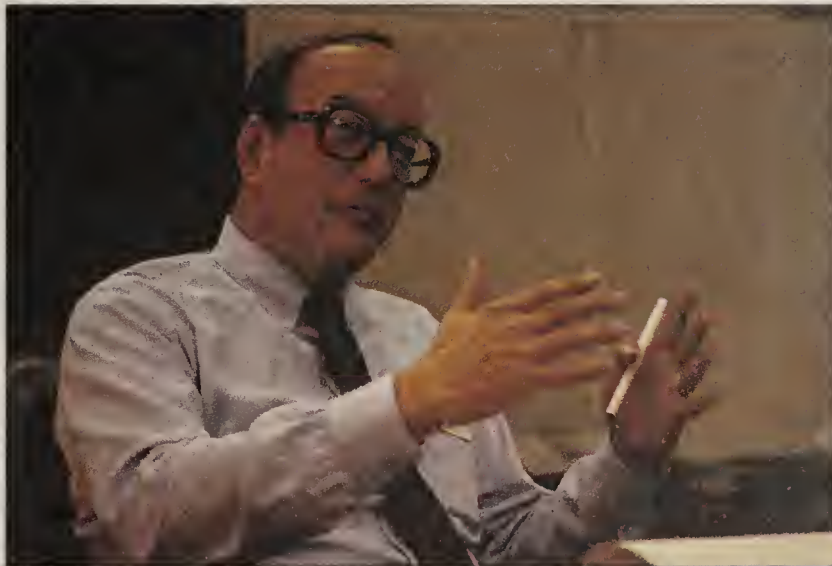
Lew Platt, head of HP's computing business since last October, is trying to change that — on HP's terms.

Platt, executive vice president of HP's Computer Systems Organization, pledged a faster moving company with more low-end product offerings and an aggressive marketing organization to match. Furthermore, he predicted more cooperation with other vendors on basic software challenges such as object-oriented computing, and he promised

HP's own consortium.

HP and Sun Microsystems, Inc. already have a level of agreement on communications protocols for object-oriented programming, which they have jointly submitted to the Object Management Group for standardization. But other companies, particularly Apple and IBM, are cooperating to develop a high-level, object-oriented environment for future software. According to Platt, HP, still the loner, is working internally on such a project.

While nearly all the other RISC vendors have their own consortia to help garner software ports and push hardware, HP appears to be watching from the sidelines. Platt said the firm does, in fact, plan to join the action, but he would not say when.



Platt: 'Once you get a reputation, it takes forever to change it'

Platt did not reveal the identities of HP's prospective partners. However, sources within the company have indicated that Samsung Electronics, Hitachi Ltd. and fault-tolerant computer manufacturer Sequoia Systems, Inc. — all current HP licensees — are likely bets.

After several reorganizations in the last few years, HP seems to have hit on a structure that works. Platt said the firm is able to get more products out faster because "a lot of decisions that were made above me a year ago are now made below me by people more knowledgeable of the details."

HP credits the new, faster moving method of decision-making as enabling it to pounce on the workstation market with its HP 9000 Series 700 workstation this past March.

Nevertheless, Platt admitted to frustration over the fact that HP, high-gear hardware and efficient decision-making notwithstanding, is still saddled with a reputation for underwhelming marketing. "Once you get a reputation, it takes forever to change it," he said.

Fujitsu's Gemmell to U.S.: It's time to face the facts

BY NELL MARGOLIS
CW STAFF

CAMBRIDGE, Mass. — Sixteenth century philosophers Montaigne and Bacon, the Duke of Wellington, Henry David Thoreau and FDR never knowingly addressed the globalization of the computer industry. But each of them made the key point we are in danger of missing when it

comes to foreign investment in U.S. companies: "We have nothing to fear but fear itself."

That was the message Fujitsu America, Inc. Senior Vice President Arthur J. Gemmell took to the Harvard Business School last week. Misled by inflated rhetoric and lacking in facts, Gemmell said, many in the U.S. fear that foreign nations — in particular, Japan — are "just willy-nilly tak-

ing over all our companies." Not true, he said.

"According to the U.S. Department of Commerce, Japanese investment in the U.S. last year totaled about \$84 billion, which pales in comparison to the British investment of \$108 billion or the [European Economic Community]'s investment of \$108 billion," Gemmell said. Total foreign investment is estimated at a mere 5% of overall U.S. assets, he added.

While the percentage of foreign investment is less than we fear, Gemmell said, the true value of that investment is greater

than most of us dream. Citing government economists, he pointed out that foreign investors currently employ some 4.5 million U.S. workers and pay them more than \$130 billion in wages and salary.

What's more, he said, foreign-owned firms account for approximately 20% of U.S. exports — "a figure policymakers ought to remember when calling for curbs on foreign investment while, at the same time, clamoring for enhanced exports in order to reduce the trade deficit."

If our views of foreign investment have been perverted by

fear, Gemmell said, some of the fault lies with firms whose early forays into the U.S. market have been ill thought out, as were the efforts of some of the many U.S. firms that flocked into foreign markets in the 1960s.

Gemmell offered six guiding principals to companies that wish to be successful foreign investors: Hire local workers; exchange technology; integrate into the local community beyond pure business dealings; locate in geographical areas that are most likely to give rise to mutual benefit; use local suppliers; and invest in complete operations.

Novell

CONTINUED FROM PAGE 75

Computerworld during the past several months noted that Novell's actions in four key areas — service, support, attitude and focus — could either speed or retard the firm's progress toward the \$1 billion mark (see chart page 75). Customers, several of the IS directors said, will keep tabs on the vendor's willingness and ability to balance with service any weaknesses it shows in technology — for instance, with its print servers, which users are complaining about.

On the support side, moves such as Novell's recent spearheading of a multivendor support alliance show it is headed in

the right direction, several users said.

Arrogance has proven a trap for many a firm on an upward trajectory. Novell can best skirt the trap by listening to its customers and acting on what it hears, several users agreed.

Finally, several said they feared the vendor's focus might become fragmented.

Meanwhile, Novell is bobbing along with the networking market, which is estimated to grow at an approximate 14% annually over the next five years, according to Nancy McSharry, an analyst at International Data Corp., a market research firm based in Framingham, Mass. Overseas sales alone are providing healthy sales in-

creases for many networking firms. "It's interesting that the [networking] industry has grown large enough to support a company of that size," said David Fairclough, an EDS systems engineering manager at General Motors Corp. in Dallas.

David Langlais, director of product marketing at The Wollongong Group, predicted Novell would hit \$1 billion in the next 12 to 18 months, in part because of overseas sales. "What that shows is that people are buying a hell of a lot of networking products" in general, Langlais said. Wollongong, in Palo Alto, Calif., sells networking products that compete with but can also coexist



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with Novell systems on the same networks. "That's the same old Novell [Netware 2] that is selling, Langlais explained. "They're just getting better at marketing overseas. If Netware 3 takes off..."

However, Novell owes almost as much to other factors: an emerging aversion to Microsoft's LAN Manager network operating system, 3Com Corp.'s withdrawal last year from the local-area networking market and the endorsement of Novell's Netware operating system by IBM.

Cecilia Brancato, a financial analyst at Oppenheimer & Co. in New York, said a recent survey she conducted of 150 large companies revealed a "dramatic" shift away from Microsoft's LAN Manager network operating system as a future option. That reluctance has strongly tainted LAN Manager-based LAN Server from IBM and 3+Open from 3Com, Brancato said; 3+Open is being folded back into LAN Manager.

"This is an unusual window of opportunity for Novell to gain market share from an already strong position," she said. International Data Corp. analyst Lee Doyle estimated that Novell, with 900,000 Netware licenses out, already has 53% of the world's networks in the bag.

Brancato predicted Novell will hit \$1 billion in fiscal year 1993.

Richard Retin, senior technical analyst at Wells Fargo Bank NA in San Francisco, agreed that Novell is facing "less credible competition." But it is also building its base of support programs that will be ever more critical for wooing new customers and keeping them on board. Retin cited Novell's ringleader role in the Technical Support Alliance formed this year by leading names in personal computing.

Fairclough agreed. "I don't know if I would make a big deal over \$1 billion. Novell's been around for a while. It seems to be making the right moves."

"The good thing about Novell is, they are a software and services company," said John McLaughlin, manager of the McDonalds Corp. premises-area network in Oak Brook, Ill. Beyond product development spending — now set at about 12.5% of net sales, according to Novell — "all they have to do is maintain support," McLaughlin explained.

Proxy fighter sells Ask shares

MOUNTAIN VIEW, Calif. — James T. Lennane, who launched a proxy fight last year to gain seats on the board of Ask Computer Systems, Inc., has sold shares in the firm, Ask confirmed last week.

Last October, Lennane tried to parlay his sizable stake in Ask into some measure of control over the firm, which acquired database maker Ingres Corp. that month. Lennane opposed the Ingres merger.

Lennane, a Florida resident who made a fortune by founding System Integrators, Inc. in Sacramento, Calif., owned 9.7% of Ask shares in October 1990. Last week, he sold about 1.5 million shares at \$10.25 a share, Ask said. Lennane could not be reached for comment, but he reportedly made a profit on the sale and held on to 1,000 Ask shares. Ask had no official comment, but a spokeswoman said, "We were aware he was contemplating the sale of his shares."

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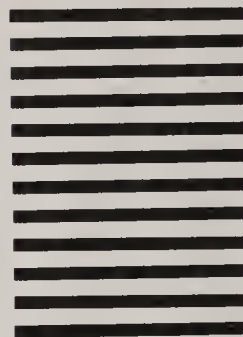
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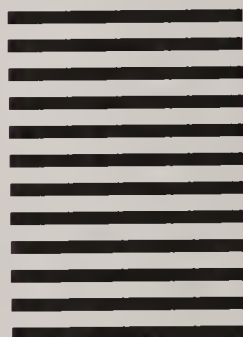
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COMPUTERWORLD

The Newsweekly of Information Systems Management

Vendors to assess options in Eastern Europe

BY GERHARD RAINER
IDG NEWS SERVICE

VIENNA — In the name of downsizing, more than 20,000 obsolete midrange and mainframe computers in Eastern Europe will be replaced by new models within the next five years, according to Steven Frantzen, an analyst at market research group International Data Corp. (IDC) and co-organizer of IDC's Eastern Europe Conference, which will be held here on Oct. 17 and 18.

But there is a sharp contrast between future great expectations and a current Eastern European market marked by economic devastation and business mores that are hard put to keep pace with political change. The disparity could make corporate venturing in the new frontier a risky proposition for the unwary corporate venturer.

Proceed with caution

Frantzen's advice to vendors with Eastern European ambitions is to be patient and aware of the long-term perspectives and risks involved.

The business potential for high-tech companies in Eastern Europe cannot be assessed without analyzing regional differences in each country, he said. In gen-

eral, however, low-end personal computers, networks and Unix will top the purchase lists, according to Frantzen.

Unix and local-area networks are making headway in both Hungary and Czechoslovakia, the latter of which enjoyed a PC boom in 1989 and 1990, Frantzen said. A shortage of foreign currency and increasing competition are current drawbacks in Czechoslovakia. On the plus side, the level of professional skills is very high.

Compared with other Eastern European countries, Hungary has the most developed data processing market in terms of training, distribution and services. It also reports constant growth rates. How-

ever, Hungary also has the greatest per capita debt in Europe — \$21 billion — and a strong inflation rate.

The Soviet Union is the largest single market in the East. In 1990, it accounted for about half of the \$1.12 billion worth of U.S. hardware deliveries to Eastern Europe, according to IDC.

Local approach

Setting up locally is important, Frantzen said. "Now is the time to form local teams and educate local management," he said, adding that marketing and advertising must not be forgotten.

Meanwhile, according to reports in the

British financial press, Western computer makers including IBM, Germany's Siemens-Nixdorf Informationssysteme AG and UK-based ICL are jockeying for position in Eastern Europe after the collapse of local computer manufacturing. ICL said that in a break with its accepted business practices, it intends to market in Poland and Czechoslovakia its own Series 39 machines and mainframe computers built by its Japanese parent, Fujitsu Ltd.

According to the firm, the decision to sell Fujitsu mainframes was a local response to Eastern European market conditions and would not be repeated elsewhere.

Rainer writes for Computerwelt Oesterreich, an IDG Communications Austrian publication.

Siemens' woes could worsen

IDG NEWS SERVICE

PARIS — As anticipated, this year's financial results at Germany's Siemens-Nixdorf Informationssysteme AG will suffer severely from integration costs of about \$287.3 million. The computer group released the news earlier this month, according to a report last week in the British financial press.

Siemens-Nixdorf refused to comment on reports by German business weekly magazine *Wirtschaftswoche* that it was also heading for a \$287.3 million operational loss.

The company said that at the half-year mark, overall revenue was down 17% from that reported in the previous year's corresponding period. However, it added, by the end of August, sales were lagging only 5% behind the comparable figure for 1989-1990. Also, orders were up 5% from the previous year's figure.

The *Wirtschaftswoche* report also cast doubts on the future of two of the firm's factories and said that Siemens-Nixdorf might be about to launch a bid for German software house SAP. Siemens-Nixdorf dismissed both suggestions.

Analysts said operating losses of about \$287.3 million seemed "reasonable" in light of the \$218 million loss reported for the first six months of 1991.

The firm has found the going hard since it was formed in January 1990, when Siemens took over Nixdorf to save it from collapse. Nine months ago, finance director Karl-Hermann Baumann said he hoped Siemens-Nixdorf would break even this year after an operating loss of \$460 million in 1989-1990. In March, the firm acknowledged that a break-even point would not in fact be reached this year.

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EXECUTIVE CORNER

Systemhouse makes West Coast move

John M. Bean has been named vice president and general manager of Ottawa-based systems integrator **SHL Systemhouse, Inc.**'s newly established Pacific Northwest operations, based in Vancouver, British Columbia. Bean comes to Systemhouse after 15 years at Arthur Andersen & Co., most recently as a partner at Chicago-based **Andersen Consulting**. His appointment and the establishment of the operations he will head up mark the first step in Systemhouse's Pacific Rim strategy, according to Systemhouse Chairman **John Oltman**.



Xetel Corp. Chairman Kozo Sato recently named **Richard N. Winter** president and chief operating officer of the Austin, Texas-based company. Xetel, a subsidiary of San Francisco-based **Rohm Corp.**, provides performance-enhancing components to OEMs.

Wang Laboratories, Inc. appointed **Richard A. Nortz** to the newly created post of senior vice president of customer relations. Nortz, who joins Wang after an 18-year stint at **Digital Equipment**

Corp., will be responsible for worldwide service and support in the firm's three recently formed business units: Wang Information Systems, Office 2000 Systems and Personal Computer Systems.

Beaverton, Ore.-based **Central Point Software, Inc.** President Corey Smith has assumed the additional title and responsibilities of chief executive officer. The change will allow founder, chairman and former CEO Mike Brown to focus on technology development as Central Point's chief technical officer, the company said.

Richard M. Haddrill, a partner in the international accounting and consulting firm **Ernst & Young**, has been named

to the newly created position of executive vice president of finance and administration and chief financial officer at Atlanta-based **Knowledgeware, Inc.** Haddrill will be responsible for the company's accounting, treasury, financial planning and information systems functions.

Boston Technology earlier this month announced that David S. Gergacz has been named president and COO. Gergacz, who will report to CEO Greg Carr, previously served as president and COO of U.S. Sprint Communications Co.'s Network Systems Division, presiding over the Sprint operating unit's two-year growth from a \$10 million start-up to a \$500 million business based in Wakefield, Mass.

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INTERNATIONAL BRIEFS

Shift into software

► Japanese giant **Fujitsu Ltd.** earlier this month invested an undisclosed sum in return for a 40% stake in Australian software maker **Softway Pty. Ltd.** The investment, Fujitsu's first in a foreign software firm, makes Fujitsu Softway's largest shareholder. The two companies plan to jointly develop Unix systems.

Rumor mill

► German steel and engineering firm **Mannesmann AG** has denied that it is mounting a bid for UK-based **Racal Electronics PLC**, the defense, security and communications business units that will remain after the breakup of Britain's **Racal Telecom**. In the days before the denial, **Racal Electronics**' shares rose sharply on rumors that a bidder was eyeing the group, whose stock officially started trading last week.

Ups and downs

► **Matsushita Electric Industrial Co.** said sales for the Osaka-based firm and its subsidiaries rose 12% to \$12.8 billion in the first quarter of the current fiscal year, ended June 30. But quarterly net income fell 34% to \$277 million, compared with the \$58.3 billion profit logged in Matsushita's comparable quarter last year.

Nordic blues

► Norway's troubled computer maker **Norsk Data A/S** last week posted heavier-than-expected losses for the first half of the current fiscal year. A \$34.8 million operating loss exceeded analysts' predictions of losses in the \$15 million range. **Norsk Data**'s revenue plummeted 28% to \$144 million for the first six months of 1991. Chief Executive Officer **Erik Engebretsen** announced a major restructuring of the firm, including a 500-person layoff.

Svelter Mentor

► Prompted by the corporate restructuring of its U.S.-based parent, **Mentor Graphics Corp.**, **Mentor Graphics Hong Kong** is closing down its local sales activity after six years of operation, according to a report in the Hong Kong business press. Beaverton, Ore.-based **Mentor**'s recently announced streamlining is the first work force reduction in the firm's 10-year history.

COMPUTER CAREERS

IS staffs can win when outsourcers are employers

Part II of a two-part series that focuses on outsourcing and the impact it has on IS careers.

BY EMILY LEINFUSS
SPECIAL TO CW

Information systems employees may cringe at the thought of being told their department has been outsourced and they now work for the outsourcer. But savvy professionals can turn such a switch into a land of opportunity.

First, they must master the obstacles. IS employees will have to prove themselves to a new set of peers and management. They must become accustomed to a different corporate culture and cope with an increased amount of stress.

The main reason that careers can be bolstered at an outsourcing vendor is that the firm's core business is information technology. Therefore, the company courts and rewards technical know-how, relies on technology for its bottom line and has far more job moves available within the organization.

In addition, most outsourcing companies deal with a wide scope of businesses and technical specialties, ranging from computer-aided design and manufacturing to robotics and computer-aided

software engineering.

If employees have a specific technical interest, they can cross over to their most desired area, says Lynne Scott, manager of transitions for several strategic business units at Electronic Data Systems Corp. in Dallas.

"Theoretically, the sky's the limit [at an outsourcing vendor]," says Perry Harris, a senior analyst at The Yankee Group in Boston.

Just ask Ray Brecker, who moved over to Digital Equipment Corp. in Rochester, N.Y., after working for 17 years for Eastman Kodak Co. Brecker, currently the manager for virtual network services at DEC, has since been involved with several projects for companies other than Kodak, has assumed management and budget responsibilities and has even taken over senior management positions for short periods.

Another advantage for employees who have moved to an outsourcing vendor is that careers open up horizontally and vertically, says Caroline Spear, international marketing manager of operations support services at DEC in Stow, Mass.

Vertically, careers can expand because there are many types of senior positions, and top managers often have technical backgrounds. Horizontally, an IS pro-

fessional can move in many directions at a company whose main business is technology. Some examples are consulting, research and development, product development and product management, Spear says.

Outsourcing vendors also generally offer extensive education programs to employees. This not only allows the transitioned employee to keep current with technology, but it also provides many avenues for career changes. "If an employee has an interest in switching over to other technical areas, we probably have all levels of education in that arena," Scott says.

Vaughn Hovey, director of corporate data center services at Kodak, says he knows at least six Kodak employees who gained increased responsibilities and were given extensive training and education after moving to IBM. Some of the training included management issues, such as conflict management, relationship management, project management and extensive quality leadership training, he says.

But making the switch to an

outsourcer takes some adjustment, and some employees won't even make it to the outsourcing team. "Often, deadwood is eliminated," Harris says. "But if you are good, you shouldn't worry."

Life at an outsourcer can be more stressful, says Mike Williams, chief financial officer at *The Houston Chronicle* and former executive vice president at First City Bank Corp. in Houston.

Williams helped manage an outsourcing agreement with EDS for First City. He says that while the lower level IS employees who moved over to EDS found their career horizons opened, they also felt that the outsourcing vendor's environment was more demanding. "There is a dog-eat-dog aspect in working for these companies," he says.

Williams adds that a large, national company is not as secure an environment as a smaller firm.

"In the case of First City, you went from a paternalistic organization into a company that views you simply as a resource to be rented, moved and manipulated around," he says.

IS professionals also have to

deal with the issues of divided loyalties and changing relationships when they transition over to an outsourcing vendor.

Peer-to-customer shift

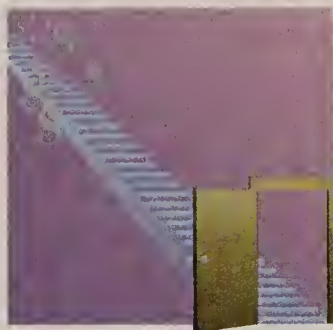
For example, when Brecker made the move to DEC, he didn't even change his desk. All of a sudden, he was a supplier of services to his former peers. "I had to learn to treat the customer as a customer and not as fellow employees," he says. One trick he learned was to put on a suit coat when it was time to interact with Kodak employees to show that he was a provider of services.

Another downside to outsourcing is that IS professionals could experience dislocation. In most cases, the outsourcer tries to employ people in the same geographic area, but sometimes it is just not possible.

"The high-tech people and journeyman programmers do pretty well as a result of outsourcing," says Larry L. Bettinger, executive vice president at UJB Financial Corp. in Newark, N.J., and former chief information officer at Meritor Savings Bank in Philadelphia.

"But in the long run, they all get disaccommodated in one way or another. Outsourcers can move them at their whim," Bettinger says.

Leinfuss is a free-lance writer based in Sarasota, Fla.



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Demand for database managers intensifies

BY JULIA KING
SPECIAL TO CW

As more organizations grasp the strategic value of information, the need for qualified database administrators is mushrooming. In some regions, the demand far outstrips the supply of qualified information systems professionals.

As larger firms expand the number and kinds of database management systems on which they rely, job opportunities will multiply, making qualified database administrators among the most sought after IS workers in today's marketplace.

Clearly, this should come as good news to technically oriented IS professionals, who as database administrators can get starting salaries of \$50,000 for maintaining the integrity, consistency and accuracy of what many companies regard as their most valuable corporate asset.

High salaries

Database administrators can command higher salaries because companies place broad demands on those employees, says Al Flournoy, a senior database administrator at M. W. Kellogg Co., a Houston-based engineering and construction firm.

By giving its database administrators \$50,000-plus salaries,

Kellogg is paying for custodial care of the very heart of its operations, says David Lee, Kellogg's manager of database technology.

Kellogg's database administrators are also responsible for ensuring data integrity, testing and tuning database performance, training users in database standards and assuring the quality of all database-related applications.

At other companies, this list of responsibilities continues, especially if the employer is among the increasing number of firms that are combining the traditional functions of a database administrator with those of a data analyst or data modeler who deals with logical data issues.

One such employer is Houston-based Mitchell Energy and Development Corp., where JoAnn Gartland, a former applications developer, performs both jobs in the company's 100-person IS department.

On the database administrator side, Gartland says her responsibilities are similar to those of a database administrator at Kellogg and require expert technical skills. As a data analyst, however, she said she finds her in-

terpersonal communications skills are most often required.

"This is because a data analyst must understand a user's perspective and what the data means to the user," she explains.

Personality a plus

Even at companies where database administrator and data analyst positions remain separate, recruiters and managers stress the critical importance of a database administrator's interpersonal communications skills.

"We can have the brightest person who produces the best databases, but if he or she can't communicate and get along with the staff, their whole purpose is defeated," says Donald Holbrook, technical programming manager at Atlanta-based Colonial Pipeline Co.

To fulfill this requirement, Colonial has tapped in-house programmers and systems support staff members with good communications skills and then trained them internally. But this solution has its trade-offs, chief of which, Holbrook says, is that the most technically competent person is not always hired.

"In fact, if we lost our current database administrators and we didn't have a company policy of hiring from within, I'd be tempted to go out and look on the market for replacements," Holbrook says. In doing so, he says, he could hire people with a track re-

cord in the kinds of DBMSs that Colonial employs in its operation.

One of Colonial's systems is Oracle Corp.'s Oracle relational database, the No. 1 system for which companies seek skilled database administrators, according to Suzanne Fairlie, president of Prosearch, Inc., a Philadelphia-based recruitment firm.

After Oracle, database administrators skilled in IBM's DB2 and Software AG of North America's Adabas are most in demand, Fairlie says.

In Philadelphia, for example, "there is not enough Oracle talent to go around, but nobody wants to pay relocation fees, so companies are hiring people with [Ask Computer Systems, Inc.'s] Ingres and other experience, and then training them," Fairlie says. Typically, she adds, a 100-person IS department will have three database administrators on staff.

Specialists preferred

Ideally, database managers say they would much prefer to hire a database administrator with experience in their firm's particular type of DBMS. But given what appears to be a shortfall of experienced database administrators, most realize this may be impossible. As a result, they will frequently hire a candidate with a general background in database technology.

"Most companies want experience in whatever DBMS they have," Gartland says. "But because database administrators are in demand, the next best

thing is someone with an overall knowledge of database theory. If you learn one, you can learn any other one. The fundamentals don't change. What changes is the way the DBMS stores data."

One caveat for IS professionals: Not all companies advertise specifically for a database administrator, even though they seek someone who will perform a da-

ANY WAY YOU look at it, qualified database administrators are a rare breed.

tabase administrator's functions.

"Every company is approaching the role of database administrator a little differently, and there is every variation of job description for this role," Fairlie says, adding that prospective database administrators may want to respond to advertisements that do not include any mention of a database administrator yet describe a database administrator's functions.

Any way you look at it, Flournoy says, qualified database administrators are a rare breed.

"Database administrators are people who are curious, tenacious and self-assured by nature rather than by training," he explains. "Not everybody has these traits, and not everyone who starts out to be a database administrator can do it well."

King is a free-lance technology writer based in Ridley Park, Pa.



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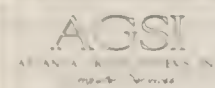
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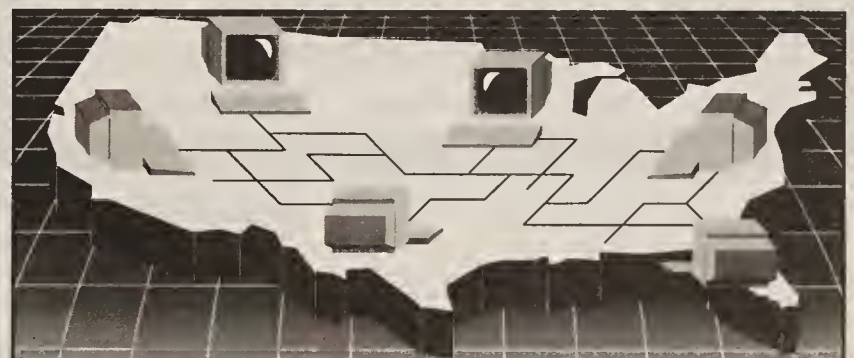
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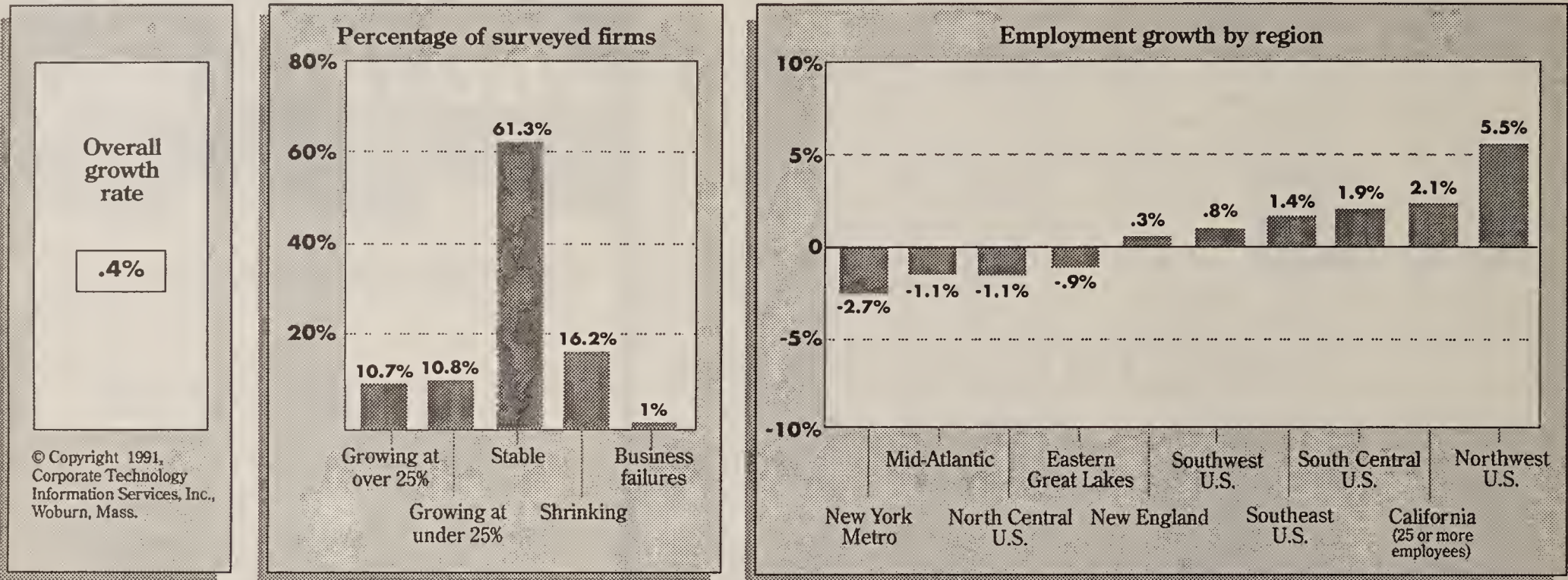
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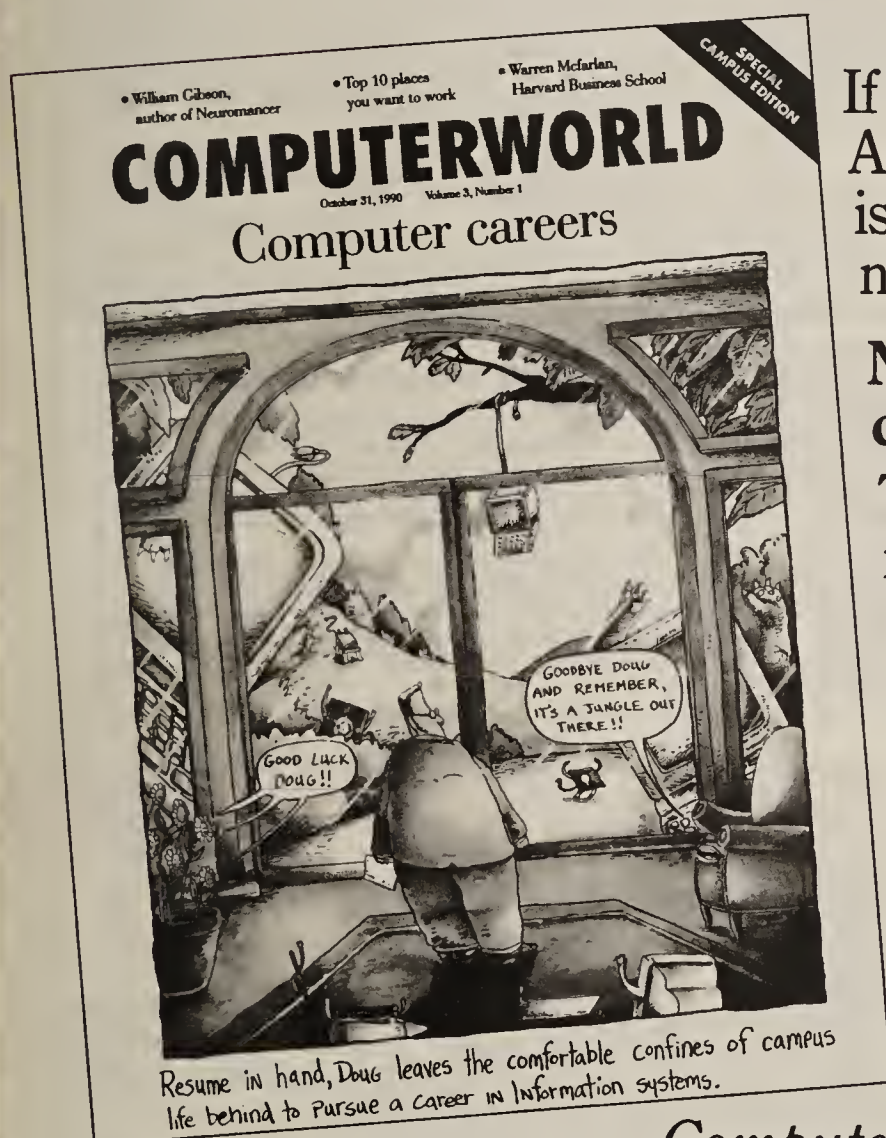
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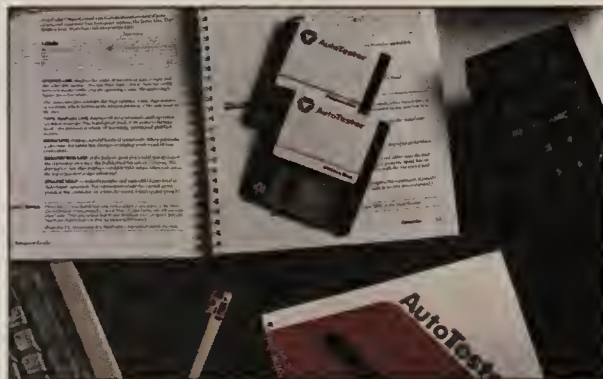


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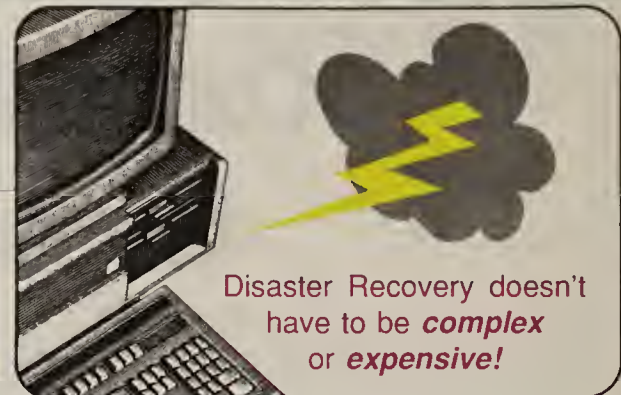


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VARs: Hard to find and harder to rate

BY ALAN RADDING
SPECIAL TO CW

Information systems departments are increasingly turning to value-added resellers (VAR) for customized service and software to cope with the expanded use of personal computers, workstations and networks.

"I see more flexibility when buying from a VAR than going direct to a major supplier," says Phil Feigel, director of customer products and services standardization at GTE Telephone Operations in Irving, Texas. When Feigel went shopping for a voice response system, he could have bought directly from AT&T but instead purchased the system through Interface Strategies, Inc. because it was willing to do extensive custom modification.

As many have discovered, however, selecting a VAR and understanding the particular "value-added" that each VAR brings is no easy task.

Not every VAR is capable of working with a large IS department. "Traditional VARs are too small for large MIS accounts,"

says Lee Levitt, an analyst at International Data Corp. in Framingham, Mass. A small VAR probably won't have the financial resources and staff to handle a major project, he says.

One reason VARs can be difficult to select is that almost everyone from computer retailers to system integrators calls himself a VAR, so buyers must look closely at value-added offerings.

"In a strict sense, a VAR provides software, support and training. A systems integrator is usually more involved in putting hardware and software together," says Gene Bledsoe, managing partner at Casal Group, a Dallas-based consulting group that specializes in VARs. Retailers sell hardware and software but offer little in the way of specialized, value-added services.

Hard to find

True VARs are hard to find, according to Bledsoe. "VARs are invisible vendors," he says. "They don't have a storefront,

and you can't find them easily in the Yellow Pages."

Most VARs are small businesses. Casal Group counts about 7,500 VARs, half of which have annual sales of less than \$1 million. Sixty percent of the VARs work only within a 200-mile radius of their base.

Typically, IS groups scout for VARs at trade shows or find them by word of mouth. "We met some VARs at computer design shows and knew of some that had worked for other design firms in the area," says Howard Elgart, director of finance and systems manager at Ballinger Co. in Philadelphia.

Jim Gray, president of GTE Federal Credit Union in San Angelo, Texas, found Interface Strategies via its interactive voice response system through the GTE grapevine.

Once identified, VARs are difficult to evaluate because the value-added qualities they bring are often intangible. Often, IS professionals say their selection comes down to a gut response based on references from others and comfort with the VAR.

For example, feedback from other firms led The Braegen Group, Inc. to choose Brock Control Systems, an Atlanta-based VAR, over several other vendors that met the same criteria. "We

knew what was available, and we were getting very good feedback on Brock from others," says Morgan Smythe, president of the Toronto-based firm.

Because ongoing support and service are often vital ingredients to the value-added mix, IS organizations must assess a VAR's stability and its prospects for long-term dependability.

"Interface Strategies already had a relationship with other GTE divisions, so we didn't feel we had to worry about their longevity or survival or financial condition," Gray says.

Price is perhaps the trickiest issue in the evaluation. Although VARs and their customers emphasize the value-added contribution, and analysts downplay the importance of price, no one wants to feel they have overpaid.

"Price is one of the least important issues. The VAR shows value that outweighs the cost," Levitt says. Instead of price shopping, IS groups should find a VAR with the right expertise and a stable track record, he says.

But pricing still comes into play. "It's almost always a bid situation, formal or informal," Bledsoe says. "You're dealing with small businesses, so everything is negotiable."

VAR prices have traditionally been bundled — with software, hardware, support and service all rolled into one price. But that's changing. "With so many resell-

ers out there trying to buy market share by cutting price, VARs are getting away from selling hardware," reports Tom Farre, editor of *Reseller Management Magazine*.

About half the VARs today unbundle costs, Bledsoe says. Instead, they charge for their value-added services, whether software or expertise or service, in a variety of ways. "They may charge by the hour, by the proj-

VARS ARE hard to evaluate because the value-added qualities they bring are often intangible. Often, selection comes down to a gut response.

ect or some sort of cost-plus formula," Farre says.

VARs typically are low-volume, high-quality operations that seek to develop satisfying, long-term relationships with their clients.

IS professionals, Bledsoe advises, should in turn apply those same long-term quality standards when evaluating VARs.

Radding is a free-lance writer based in Newton, Mass.



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| IBM XT Model 089 | \$425 | \$450 | \$375 |
| AT Model 099 | \$600 | \$675 | \$500 |
| AT Model 239 | \$550 | \$650 | \$500 |
| AT Model 339 | \$750 | \$1,000 | \$700 |
| PS/2 Model 30-286 | \$900 | \$1,050 | \$850 |
| PS/2 Model 60 | \$900 | \$1,500 | \$900 |
| PS/2 Model 80 | \$2,450 | \$2,700 | \$2,300 |
| PS/2 Model 90 | \$4,300 | \$4,600 | \$4,100 |
| Compaq Portable II | \$700 | \$1,050 | \$700 |
| Portable 286 | \$1,100 | \$1,300 | \$1,000 |
| Portable 386 | \$1,900 | \$2,100 | \$1,500 |
| SLT 286 | \$1,400 | \$1,600 | \$1,400 |
| LTE 286 | \$1,650 | \$1,700 | \$1,600 |
| Deskpro 286 | \$800 | \$1,000 | \$700 |
| Deskpro 386/20 | \$2,150 | \$3,000 | \$2,000 |
| Apple Macintosh Plus | \$750 | \$975 | \$700 |
| SE | \$1,025 | \$1,100 | \$950 |
| IIX | \$3,550 | \$3,600 | \$3,500 |
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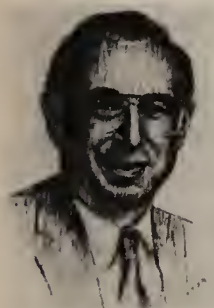
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AIIM 74
AT&T Business Communications Systems36-37
AT&T International Communications Services C3
B I Moyle Associates, Inc. 27
Banyan Systems..... 48
Candle Corp 21
Chipcom Corp..... 60
Comnet 76
Computer Securities..... 68
CW Circulation..... 77
Data Preference 10
DCA 54
Digital Equipment Corp 18-19
Eastman Kodak 58
Fifth Generation 38
Hewlett-Packard..... 14-15, 52
Hyundai Electronics 78-79
IBM 22-23, 28, 42, 62-63, 72-73
Information Builders..... 31, 33
Informix..... 56
Intel 50-51
IBS Neosynetics 46
IPL Systems 12
Micro Focus 35
Nantucket Corp..... 47
Oracle Corp 5, 9, 11
PC Expo 64
Programart 53, 55, 57, 59
Ross Systems 16
SAS Institute 17, 71
Software AG..... 26
Software Engineering of America C4
SunSoft 44-45
Sybase, Inc. 13
Syncsort 3
Systems Center 7
Tandon 40-41
Texas Instruments 30
Unix International 32
U.S. Robotics..... 34
Workstation Group 70
XDB Systems 39

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INDUSTRY ALMANAC

INVESTMENT OUTLOOK: CHIP STOCKS

The semiconductor book-to-bill ratio, which slipped from 0.96 in July to 0.94 in August, will bottom out either this month or next month, then grow strongly as the year ends, according to Michael Gumpert, an analyst at Shearson Lehman Brothers, Inc. The book-to-bill ratio measures orders received vs. orders shipped and can be an indicator of computer business three to six months down the road. The ratio is going down, but chip stocks will go up, Gumpert said.

The recession and the summer, which is typically a slow period, are ending, which will kick orders upward. With that in mind, chip stocks are a good buy right now. They currently trade at low valuations that will rise as business improves, Gumpert said. Worldwide sales this year will grow 9% over last year and 25% in 1992, he predicted.

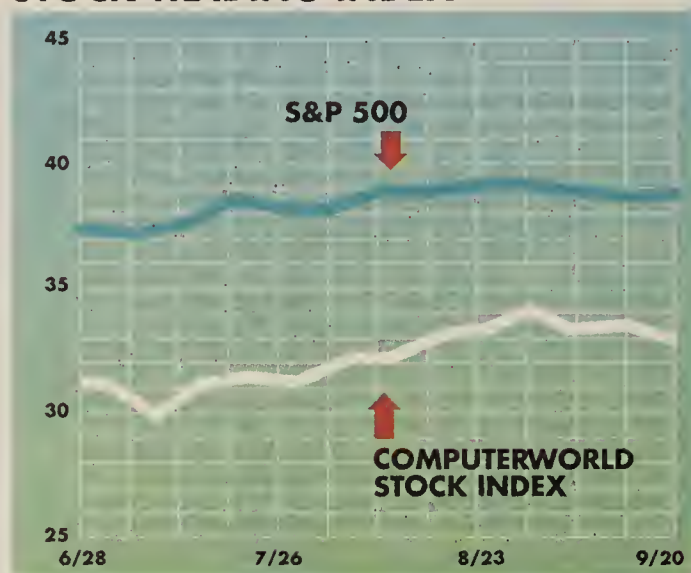
Split decision

Analysts differ on investment ratings for selected semiconductor stocks

| Company | Prudential Securities, Inc. | Shearson Lehman Brothers, Inc. |
|------------------------------|-----------------------------|--------------------------------|
| Advanced Micro Devices, Inc. | Hold | Buy |
| Chips and Technologies, Inc. | Hold | Buy |
| Cypress Semiconductor Corp. | Hold | Not rated |
| Intel Corp. | Buy | Neutral |
| Motorola, Inc. | Hold | Buy |
| National Semiconductor, Inc. | Hold | Neutral |
| Texas Instruments, Inc. | Hold | Buy |
| Xilinx, Inc. | Hold | Buy |

CW Chart: Michael Siggins

STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

- Top gainers last week included Adobe Systems, Inc., which spiked up 7 points to close Thursday at 51½, a 16% gain. Adobe announced better-than-anticipated fourth-quarter earnings last week.
- Among the week's top losers, Intel Corp. dropped 8½ points to 41½. It announced that earnings for the third quarter, ending Sept. 28, will not be as good as analysts predicted. Other losers included Compaq Computer Corp., which slipped 2¼ points to 32½.
- Network Equipment Technologies, Inc. jumped 2 points last week to 13½, and Network General Corp. advanced 1¾ points to 13½. Teleconferencing equipment rivals Picturatel Corp. and Compression Labs, Inc. both sank. Picturatel slid 1¾ points to 33¼, and Compression Labs lost 2 points to close Thursday at 18.
- IBM said last week that its new workstations have been delayed; IBM shares inched up ⅞ of a point to 104½. Sun Microsystems, Inc. fell 1½ points to 30½.

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY, SEPTEMBER, 1991

| TOP PERCENT GAINERS | | | | TOP PERCENT LOSERS | | | | TOP DOLLAR GAINERS | | | | TOP DOLLAR LOSERS | | | | |
|--------------------------|---------|---------------|---------------------------|----------------------|---------|--------------------|--------|------------------------|---------|---------------------------|-------|---------------------|---------|-----------------------|-------|-------|
| Selecterm Inc. | 30.77 | Archive Corp. | -20.95 | Adobe Systems Inc. | 27.81 | Intellicorp Inc. | -20.94 | Adobe Systems Inc. | 11.75 | Knowledgeware Inc. | -3.13 | Autodesk Inc. | 5.25 | Motorola Inc. | -2.13 | |
| Adobe Systems Inc. | 27.81 | Emulex Corp. | -14.06 | Network General | 21.74 | Knowledgeware Inc. | -13.89 | Symantec Corp. | 4.88 | Borland Int'l | -2.00 | Symantec Corp. | 4.88 | Borland Int'l | -2.00 | |
| Computer Automation Inc. | 21.70 | EMC Corp. | -12.07 | Digital Comm. Assoc. | 18.69 | | | Aldus Corp. | 4.25 | Compaq Computer Corp. | -1.75 | Aldus Corp. | 4.25 | Compaq Computer Corp. | -1.75 | |
| Digital Comm. Assoc. | 18.69 | | | | | | | Platinum Technology | 3.75 | BGS Systems Inc. | -1.63 | Platinum Technology | 3.75 | BGS Systems Inc. | -1.63 | |
| TOP PERCENT GAINERS | | | | TOP PERCENT LOSERS | | | | TOP DOLLAR GAINERS | | | | TOP DOLLAR LOSERS | | | | |
| Exch | 52-Week | Range | | Exch | 52-Week | Range | | Exch | 52-Week | Range | | Exch | 52-Week | Range | | |
| OTC | 62.25 | 32.00 | Autodesk Inc. | 50.25 | 5.25 | 11.67 | OTC | 62.25 | 32.00 | Autodesk Inc. | 50.25 | 5.25 | 11.67 | OTC | 62.25 | 32.00 |
| OTC | 35.50 | 18.50 | BGS Systems Inc. | 31.63 | -1.63 | -4.89 | OTC | 35.50 | 18.50 | BGS Systems Inc. | 31.63 | -1.63 | -4.89 | OTC | 35.50 | 18.50 |
| OTC | 52.75 | 17.75 | BMC Software Inc. | 52.25 | 0.75 | 1.46 | OTC | 52.75 | 17.75 | BMC Software Inc. | 52.25 | 0.75 | 1.46 | OTC | 52.75 | 17.75 |
| OTC | 16.00 | 8.75 | Boole & Babbage Inc. | 9.38 | -0.13 | -1.32 | OTC | 16.00 | 8.75 | Boole & Babbage Inc. | 9.38 | -0.13 | -1.32 | OTC | 16.00 | 8.75 |
| OTC | 64.25 | 16.25 | Borland Int'l | 47.25 | -2.00 | -4.06 | OTC | 64.25 | 16.25 | Borland Int'l | 47.25 | -2.00 | -4.06 | OTC | 64.25 | 16.25 |
| OTC | 20.88 | 5.13 | Cognos Inc. | 17.75 | 2.50 | 16.39 | OTC | 20.88 | 5.13 | Cognos Inc. | 17.75 | 2.50 | 16.39 | OTC | 20.88 | 5.13 |
| NYS | 11.13 | 4.38 | Computer Associates | 7.88 | 0.00 | 0.00 | NYS | 11.13 | 4.38 | Computer Associates | 7.88 | 0.00 | 0.00 | NYS | 11.13 | 4.38 |
| OTC | 17.75 | 9.50 | Computer Horizons | 11.25 | 0.75 | 7.14 | OTC | 17.75 | 9.50 | Computer Horizons | 11.25 | 0.75 | 7.14 | OTC | 17.75 | 9.50 |
| NYS | 73.25 | 36.75 | Computer Sciences | 59.63 | 1.13 | 1.92 | NYS | 73.25 | 36.75 | Computer Sciences | 59.63 | 1.13 | 1.92 | NYS | 73.25 | 36.75 |
| NYS | 11.25 | 6.63 | Computer Task Group | 9.38 | 1.25 | 15.38 | NYS | 11.25 | 6.63 | Computer Task Group | 9.38 | 1.25 | 15.38 | NYS | 11.25 | 6.63 |
| OTC | 22.75 | 13.00 | Comshare Inc. | 19.25 | -1.25 | -6.10 | OTC | 22.75 | 13.00 | Comshare Inc. | 19.25 | -1.25 | -6.10 | OTC | 22.75 | 13.00 |
| OTC | 13.25 | 3.75 | Corporate Software | 11.88 | -0.13 | -1.04 | OTC | 13.25 | 3.75 | Corporate Software | 11.88 | -0.13 | -1.04 | OTC | 13.25 | 3.75 |
| NYS | 52.25 | 30.00 | General Motors E (EDS) | 48.63 | 1.50 | 3.18 | NYS | 52.25 | 30.00 | General Motors E (EDS) | 48.63 | 1.50 | 3.18 | NYS | 52.25 | 30.00 |
| OTC | 18.75 | 7.25 | Goal Systems Int'l | 13.50 | -0.25 | -1.82 | OTC | 18.75 | 7.25 | Goal Systems Int'l | 13.50 | -0.25 | -1.82 | OTC | 18.75 | 7.25 |
| OTC | 7.00 | 1.88 | Hogan Systems Inc. | 5.75 | 0.50 | 9.52 | OTC | 7.00 | 1.88 | Hogan Systems Inc. | 5.75 | 0.50 | 9.52 | OTC | 7.00 | 1.88 |
| OTC | 29.00 | 7.75 | Information Resources | 29.00 | 2.38 | 8.92 | OTC | 29.00 | 7.75 | Information Resources | 29.00 | 2.38 | 8.92 | OTC | 29.00 | 7.75 |
| OTC | 7.75 | 2.63 | Informix Corp. | 6.50 | 0.38 | 6.12 | OTC | 7.75 | 2.63 | Informix Corp. | 6.50 | 0.38 | 6.12 | OTC | 7.75 | 2.63 |
| OTC | 4.25 | 1.38 | Intellicorp Inc. | 2.13 | -0.56 | -20.94 | OTC | 4.25 | 1.38 | Intellicorp Inc. | 2.13 | -0.56 | -20.94 | OTC | 4.25 | 1.38 |
| OTC | 31.50 | 10.50 | Intergraph | 20.25 | 2.50 | 14.08 | OTC | 31.50 | 10.50 | Intergraph | 20.25 | 2.50 | 14.08 | OTC | 31.50 | 10.50 |
| OTC | 8.25 | 2.50 | Interleaf Inc. | 7.25 | 0.88 | 13.73 | OTC | 8.25 | 2.50 | Interleaf Inc. | 7.25 | 0.88 | 13.73 | OTC | 8.25 | 2.50 |
| OTC | 12.25 | 6.88 | Intersolv | 10.50 | 0.00 | 0.00 | OTC | 12.25 | 6.88 | Intersolv | 10.50 | 0.00 | 0.00 | OTC | 12.25 | 6.88 |
| OTC | 43.25 | 10.00 | Knowledgeware Inc. | 19.38 | -3.13 | -13.89 | OTC | 43.25 | 10.00 | Knowledgeware Inc. | 19.38 | -3.13 | -13.89 | OTC | 43.25 | 10.00 |
| OTC | 45.00 | 16.75 | Legend Corp. | 26.25 | 1.63 | 6.60 | OTC | 45.00 | 16.75 | Legend Corp. | 26.25 | 1.63 | 6.60 | OTC | 45.00 | 16.75 |
| OTC | 40.75 | 12.50 | Lotus Development | 31.00 | -1.25 | -3.88 | OTC | 40.75 | 12.50 | Lotus Development | 31.00 | -1.25 | -3.88 | OTC | 40.75 | 12.50 |
| OTC | 19.00 | 9.00 | Mentor Graphics | 13.13 | 1.13 | 9.38 | OTC | 19.00 | 9.00 | Mentor Graphics | 13.13 | 1.13 | 9.38 | OTC | 19.00 | 9.00 |
| OTC | 32.00 | 9.75 | Micrografx | 12.75 | 0.00 | 0.00 | OTC | 32.00 | 9.75 | Micrografx | 12.75 | 0.00 | 0.00 | OTC | 32.00 | 9.75 |
| OTC | 86.75 | 35.75 | Microsoft Corp. | 86.50 | 3.50 | 4.22 | OTC | 86.75 | 35.75 | Microsoft Corp. | 86.50 | 3.50 | 4.22 | OTC | 86.75 | 35.75 |
| NYS | 15.75 | 4.00 | On Line Software Int'l | 15.75 | 0.25 | 1.61 | NYS | 15.75 | 4.00 | On Line Software Int'l | 15.75 | 0.25 | 1.61 | NYS | 15.75 | 4.00 |
| OTC | 11.50 | 4.88 | Oracle Systems | 10.88 | 0.25 | 2.35 | OTC | 11.50 | 4.88 | Oracle Systems | 10.88 | 0.25 | 2.35 | OTC | 11.50 | 4.88 |
| NYS | 16.00 | 7.00 | Pansophic Systems | 15.75 | 0.00 | 0.00 | NYS | 16.00 | 7.00 | Pansophic Systems | 15.75 | 0.00 | 0.00 | NYS | 16.00 | 7.00 |
| OTC | 10.00 | 1.25 | Phoenix Technologies | 9.38 | 0.63 | 7.14 | OTC | 10.00 | 1.25 | Phoenix Technologies | 9.38 | 0.63 | 7.14 | OTC | 10.00 | 1.25 |
| OTC | 34.25 | 18.00 | Platinum Technology | 34.25 | 3.75 | 12.30 | OTC | 34.25 | 18.00 | Platinum Technology | 34.25 | 3.75 | 12.30 | OTC | 34.25 | 18.00 |
| NYS | 52.50 | 33.38 | Policy Management Sys. | 52.50 | 3.38 | 6.87 | NYS | 52.50 | 33.38 | Policy Management Sys. | 52.50 | 3.38 | 6.87 | NYS | 52.50 | 33.38 |
| NYS | 24.25 | 11.50 | Reynolds & Reynolds | 24.25 | 1.25 | 5.43 | NYS | 24.25 | 11.50 | Reynolds & Reynolds | 24.25 | 1.25 | 5.43 | NYS | 24.25 | 11.50 |
| OTC | 13.00 | 6.75 | Ross Systems | 13.00 | 0.75 | 6.12 | OTC | 13.00 | 6.75 | Ross Systems | 13.00 | 0.75 | 6.12 | OTC | 13.00 | 6.75 |
| OTC | 27.25 | 14.75 | SEI Corp. | 26.50 | 0.25 | 0.95 | OTC | 27.25 | 14.75 | SEI Corp. | 26.50 | 0.25 | 0.95 | OTC | 27.25 | 14.75 |
| OTC | 22.88 | 13.88 | Shared Medical Systems | 22.25 | 1.00 | 4.71 | OTC | 22.88 | 13.88 | Shared Medical Systems | 22.25 | 1.00 | 4.71 | OTC | 22.88 | 13.88 |
| OTC | 35.25 | 12.00 | Software Publishing Corp. | 17.75 | 0.50 | 2.90 | OTC | 35.25 | 12.00 | Software Publishing Corp. | 17.75 | 0.50 | 2.90 | OTC | 35.25 | 12.00 |
| NYS | 16.75 | 5.50 | Sterling Software | 16.25 | 0.13 | 0.78 | NYS | 16.75 | 5.50 | Sterling Software | 16.25 | 0.13 | 0.78 | NYS | 16.75 | 5.50 |
| OTC | 18.25 | 9.50 | Sungard Data Sys. | 14.63 | 0.38 | 2.63 | OTC | 18.25 | 9.50 | Sungard Data Sys. | 14.63 | 0.38 | 2.63 | OTC | 18.25 | 9.50 |
| OTC | 62.38 | 17.75 | Symantec Corp. | 62.38 | 4.88 | 8.48 | OTC | 62.38 | 17.75 | Symantec Corp. | 62.38 | 4.88 | 8.48 | OTC | 62.38 | 17.75 |
| NYS | 10.63 | 4.50 | System Center Inc. | 7.63 | -0.38 | -4.69 | NYS | 10.63 | 4.50 | System Center Inc. | 7.63 | -0.38 | -4.69 | NYS | 10.63 | 4.50 |
| OTC | 37.25 | 12.50 | System Software Assoc. | 21.00 | 0.75 | 3.70 | OTC | 37.25 | 12.50 | System Software Assoc. | 21.00 | 0.75 | 3.70 | OTC | 37.25 | 12.50 |
| Semiconductors | | | | Off 0.09% | | | | Computer Systems | | | | Up 0.69% | | | | |
| NYS | 14.25 | 3.63 | Advanced Micro Devices | 10.50 | -0.75 | -6.67 | NYS | 14.25 | 3.63 | Advanced Micro Devices | 10.50 | -0.75 | -6.67 | NYS | 14.25 | 3.63 |
| NYS | 12.50 | 5.50 | Analog Devices Inc. | 7.88 | 0.38 | 5.00 | NYS | 12.50 | 5.50 | Analog Devices Inc. | 7.88 | 0.38 | 5.00 | NYS | 12.50 | 5.50 |
| OTC | 13.50 | 5.25 | Chips & Technologies | 9.25 | 0.25 | 2.78 | OTC | 13.50 | 5.25 | Chips & Technologies | 9.25 | 0.25 | 2.78 | OTC | 13.50 | 5.25 |
| OTC | 59.25 | 28.00 | Intel Corp. | 42.25 | -0.75 | -1.74 | OTC | 59.25 | 28.00 | Intel Corp. | 42.25 | -0.75 | -1.74 | OTC | 59.25 | 28.00 |
| NYS | 12.50 | 5.13 | LSI Logic Corp. | 7.13 | -0.13 | -1.72 | NYS | 12.50 | 5.13 | LSI Logic Corp. | 7.13 | -0.13 | -1.72 | NYS | 12.50 | 5.13 |
| NYS | 19.13 | 6.75 | Micron Technology | 14.13 | 0.50 | 3.67 | NYS | 19.13 | 6.75 | Micron Technology | 14.13 | 0.50 | 3.67 | NYS | 19.13 | 6.75 |
| NYS | 71.25 | 45.75 | Motorola Inc. | 61.13 | -2.13 | -3.36 | NYS | 71.25 | 45.75 | Motorola Inc. | 61.13 | -2.13 | -3.36 | NYS | 71.25 | 45.75 |
| NYS | 8.38 | 3.00 | National Semiconductor | 4.25 | -0.25 | -5.56 | NYS | 8.38 | 3.00 | National Semiconductor | 4.25 | -0.25 | -5.56 | NYS | 8.38 | 3.00 |
| NYS | 47.63 | 22.50 | Texas Instruments | 29.00 | 0.88 | 3.11 | NYS | 47.63 | 22.50 | Texas Instruments | 29.00 | 0.88 | 3.11 | NYS | 47.63 | 22.50 |
| OTC | 12.25 | 3.00 | VLSI Technology | 7.38 | 0.50 | 7.27 | OTC | 12.25 | 3.00 | VLSI Technology | 7.38 | 0.50 | 7.27 | OTC | 12.25 | 3.00 |
| OTC | 16.75 | 4.75 | Weitek | 7.50 | 0.00 | 0.00 | OTC | 16.75 | 4.75 | Weitek | 7.50 | 0.00 | 0.00 | OTC | 16.75 | 4.75 |
| ASE | 6.88 | 2.75 | Western Digital Corp. | 3.13 | -0.13 | -3.85 | ASE | 6.88 | 2.75 | Western Digital Corp. | 3.13 | -0.13 | -3.85 | ASE | 6.88 | 2.75 |
| Peripherals & Subsystems | | | | Off 1.63% | | | | Software & DP Services | | | | Up 3.81% | | | | |
| OTC | 2.75 | 0.88 | Apertus Technologies | 1.56 | -0.06 | -3.82 | OTC | 2.75 | 0.88 | Apertus Technologies | 1.56 | -0.06 | -3.82 | OTC | 2.75 | 0.88 |
| OTC | 14.75 | 7.50 | Banctec Inc. | 14.00 | 0.75 | 5.66 | OTC | 14.75 | 7.50 | Banctec Inc. | 14.00 | 0.75 | 5.66 | OTC | 14.75 | 7.50 |
| OTC | 21.75 | 4.25 | Camdex Corp. | 19.25 | 1.25 | 6.94 | OTC | 21.75 | 4.25 | Camdex Corp. | 19.25 | 1.25 | 6.94 | OTC | 21.75 | 4.25 |
| ASE | 11.75 | 4.25 | Cognitronics Corp. | 8.00 | -0.25 | -3.03 | ASE | 11.75 | 4.25 | Cognitronics Corp. | 8.00 | -0.25 | -3.03 | ASE | 11.75 | 4.25 |
| NYS | 31.25 | 14.63 | Conner Peripherals | 19.00 | -0.63 | -3.18 | NYS | 31.25 | 14.63 | Conner Peripherals | 19.00 | -0.63 | -3.18 | NYS | 31.25 | 14.63 |
| ASE | 14.50 | 7.00 | Dataram Corp. | 13.38 | -0.38 | -2.73 | ASE | 14.50 | 7.00 | Dataram Corp. | 13.38 | -0.38 | -2.73 | ASE | 14.50 | 7.00 |
| NYS | 13.00 | 4.88 | EMC Corp. | 6.38 | -0.88 | -12.07 | NYS | 13.00 | 4.88 | EMC Corp. | 6.38 | -0.88 | -12.07 | NYS | 13.00 | 4.88 |
| NYS | 47.25 | 33.75 | Eastman Kodak Co. | 42.75 | -0.63 | -1.44 | NYS | 47.25 | 33.75 | Eastman Kodak Co. | 42.75 | -0.63 | -1.44 | NYS | 47.25 | 33.75 |
| OTC | 11.25 | 4.75 | Emulex Corp. | 6.88 | -1.13 | -14.06 | OTC | 11.25 | 4.75 | Emulex Corp. | 6.88 | -1.13 | -14.06 | OTC | 11.25 | 4.75 |
| OTC | 24.00 | 14.00 | Evans & Sutherland | 17.25 | -0.13 | -0.72 | OTC | 24.00 | 14.00 | Evans & Sutherland | 17.25 | -0.13 | -0.72 | OTC | 24.00 | 14.00 |
| OTC | 6.50 | 3.88 | Iomega Corp. | 5.81 | 0.19 | 3.34 | OTC | 6.50 | 3.88 | Iomega Corp. | 5.81 | 0.19 | 3.34 | OTC | 6.50 | 3.88 |
| OTC | 28.25 | 8.00 | IPL Systems Inc. | 21.38 | 0.00 | 0.00 | OTC | 28.25 | 8.00 | IPL Systems Inc. | 21.38 | 0.00 | 0.00 | OTC | 28.25 | 8.00 |
| OTC | 6.38 | 1.63 | Maxtor Corp. | 3.88 | 0.31 | 8.76 | OTC | 6.38 | 1.63 | Maxtor Corp. | 3.88 | 0.31 | 8.76 | OTC | 6.38 | 1.63 |
| OTC | 18.00 | 4.63 | Micropolis Corp. | 6.75 | -0.63 | -8.47 | OTC | 18.00 | 4.63 | Micropolis Corp. | 6.75 | -0.63 | -8.47 | OTC | 18.00 | 4.63 |
| NYS | 97.50 | 73.63 | 3M Corp. | 89.00 | 1.13 | 1.28 | NYS | 97.50 | 73.63 | 3M Corp. | 89.00 | 1.13 | 1.28 | NYS | 97.50 | 73.63 |
| | | | | | | | | | | | | | | | | |

BT targets multinational outsourcing

BY ELLIS BOOKER
CW STAFF

NEW YORK — You can call it network outsourcing or you can call it one-stop global networking.

But British Telecommunications PLC calls it Syncordia Corp., the Atlanta-based company it launched last week to provide multinational corporations with a single source for all their international data communication needs.

BT hopes to tap the frustration of international private network customers, who must deal with individual telephone authorities in every country in which they operate. BT said it will handle that task, as well as network design, centralized network management and customized billing in four languages.

The company has been rumored to be at work on the concept for some months, but the end result is not exactly what BT had originally planned: For now at least, Syncordia lacks the participation of Nippon Telegraph and Telephone and Deutsche Bundespost Telekom, the local phone authorities for Japan and Germany, respectively.

A recent study conducted by Andersen Consulting found that 70% of the largest companies in the world are willing to outsource some or all of their net-

works within the next year or two.

Syncordia will initially have three products: Managed Links for point-to-point circuits; Managed Private Network Services, a private international network designed, managed and provisioned by Syncordia; and Network Operations Management Services, which extends the Syncordia management over

... or we might have to take over their third-party [networking] contracts," he said.

Amadeus, the European airline reservation consortium, will use Syncordia's network control center in Atlanta to manage its links to the Sabre computerized reservation system and other U.S. hotel and car rental networks.

In addition, the company said

At a glance

Headquarters: Atlanta

Network control centers: Atlanta, London, Paris and Tokyo.

Backbone network: 70 nodes worldwide, linked by 2M bit/sec. facilities.

Billing: Itemized, consolidated bills in four languages.

Customers can also select which currencies to be billed in.

Network manager: BT's Concert. Customers can monitor their own private and virtual networks.

Products: End-to-end networks, private international network services and telecommunications network management.

SYNCORDIA

CW Chart: Michael Siggins

telecommunications facilities and equipment that it has not provided.

Syncordia will follow the existing pattern for this arrangement, according to Syncordia President Gerald Thames. "In some parts of the world, companies might want us to take over [networking] assets and people

it is in the final stages of negotiations with BP Chemicals, Inc. — a large and longtime BT customer — to manage the firm's European private network. Also, BT is in detailed discussions with IBM, which is looking into using Syncordia to manage the connectivity of the IBM Information Network in Europe.

RS/6000

FROM PAGE 1

said. A handful of machines will be out in beta-test sites later this fall, however.

"This probably loses IBM some momentum, and for anyone but IBM that can be very dangerous in this market," said Judith Hurwitz, an analyst at Patricia Seybold's Office Computing Group in Boston. "But if the price/performance is really good, then it'll be worth waiting for. The worst thing they could do is introduce in October and have it be a dud."

"There is so much stuff now inside a chip, even the smallest mistake can mean up to eight weeks before the next prototype is ready," said Joseph Payne, an analyst at Alex. Brown & Sons, Inc. in Baltimore. A shipping delay of a few months in a weak economy makes little difference to users, he added.

"IBM has built tremendous momentum for the RS/6000 in the user community in general," noted Tom Willmott, vice president at Aberdeen Group in Boston. "It may be true that IBM has fallen on its own sword by promising too much too soon. But users were not expecting that rapid an improvement in what is still a relatively imma-

ture chip."

For Prudential Securities, Inc. in New York, the shipping delay for the low-end systems caused no great concern. "This disappoints people because IBM was about to blast into the market, but from my point of view, it's not a critical item," said William H. Anderson, chief information officer at the firm, which is installing a network of more than 400 RS/6000s nationwide during the next few years. "If you were making a major purchase decision in the next month, however, this could be critical."

Prudential plans to install some of the low-end machines in 1993, but its initial 6000 network rollout of the RS/6000s should be unaffected by the delay, he said.

Crucial plan

More crucial to commercial customers such as Prudential is IBM's emerging plan to reposition the RS/6000 line more strongly as a transaction processing machine for multiuser business environments.

"IBM is going after the commercial market in a big way now," Hurwitz said. IBM officials confirmed that the gap is narrowing between the RS/6000's commercial and technical sales, which will be split nearly evenly this year as business in-

terest continues to grow.

Analysts said IBM is staking out transaction processing as a potential gold mine for the RS/6000. The firm has said it will bring its mainframe-based CICS transaction monitor to the AIX operating system by 1993. Earlier this year, IBM allied itself with Transarc Corp., which last week introduced its Encina Toolkit for standards-based, distributed transaction processing services. The next major release of AIX, expected in the first half of 1992, should further boost the RS/6000's appeal to commercial environments.

"IBM is making that operating system look more and more like a commercial language. It's getting much more robust," Anderson said. "Over time, AIX will get to the point where it will look like the best operating system to run all this stuff."

Some customers are experimenting with clustered RS/6000s made virtually fault-tolerant with the AIX High Availability Option, which enables activity on a faltering CPU to move to another processor without losing data or processing time. The High Availability Option is available by special bid only at this point. Yet analysts said they believe IBM will play up this capability in the future for mission-critical applications.

NEWS SHORTS

Wang adds PC models

Wang Laboratories, Inc. added seven models to its Exec Series line of personal computer products. The new systems range from an entry-level, slim-line Intel Corp. 80386SX model to a high-end Intel I486SX system. Suggested retail pricing ranges from \$1,499 to \$4,999. Wang also said it scored a \$4.5 million contract win with Mexico City-based Infonavit, calling for the delivery of 46 VS 5000 systems and one VS 8000 system.

TI slashes Travelmate prices

Texas Instruments, Inc. dropped prices by 18% to 26% last week on its Travelmate 3000 line of Intel 80386SX-based notebooks. The base configuration with a 20M-byte hard drive costs \$2,599, down from \$3,199, and the high-end WinSX with a 60M-byte drive is now \$3,499, down from \$5,499. TI last cut prices in May.

Grainger quits DEC

David Grainger, formerly Digital Equipment Corp.'s top sales executive, resigned last week, less than a year after DEC shifted him to a job developing new distribution channels and working with value-added resellers. Company insiders said Grainger's decision to leave was known two weeks ago, when Chief Financial Officer James Osterhoff announced his intention to depart, but company executives kept it quiet to prevent the impression that too much top talent was jumping ship.

Cognos sues competitor

Cognos, Inc. last week filed a copyright infringement lawsuit against Tymlabs Corp. in Austin, Texas, alleging that Tymlabs' PDQ product infringes on Cognos' Powerhouse fourth-generation language. Cognos said PDQ copies the command set and command structure, sequence, organization and syntax of its QDD dictionary and Quiz report writing software.

Verdict by multimedia

Technology in the courtroom gained ground last week when Texas' highest court of appeals upheld a child abuse conviction that had been secured using a two-way multimedia application. The system, the Multimedia Information Network Exchange from Datapoint Corp., lets the child testify from a separate room to avoid the trauma of facing his assailant, said Barbara Hervey, an appeals attorney at the Bexar County District Attorney's Office. The conviction had been appealed on the grounds that the defendant's right to confront his accuser had been impaired.

Token Ring goes mail order

IBM signed on Eden Prairie, Minn.-based mail-order house Northgate Computer Systems, Inc. as a Token Ring OEM. Under this agreement, Northgate will resell IBM's Token Ring cards and 3270 emulation cards.

Borland CEO talks of layoffs

Speaking at a French software conference last week, Borland International, Inc. Chairman Philippe Kahn said the Ashton-Tate Corp. work force of 1,300 could fall as low as 600 if Borland were to follow a business formula that equates each employee with \$300,000 in revenue. However, a Borland spokesman said the number was hypothetical, and Borland has not determined how many employees would be laid off.

AMD gains another vendor

Grid Systems Corp., a wholly owned subsidiary of Tandy Corp., will today begin shipping the Grid 325SC, based on Advanced Micro Devices, Inc.'s 25-MHz AM386SX processor. The 325SC will ship in two versions, one with no hard drive and one with a 120M-byte hard drive. Both models will come standard with 2M bytes of random-access memory, a 32K-byte cache and seven 16-bit AT-bus expansion slots. The Model 1, which is diskless, sells for \$2,199. The Model 120 sells for \$2,599.

Symmetric multiprocessing comes to PCs

BY MICHAEL FITZGERALD
CW STAFF

Symmetric multiprocessing (SMP) is not just for big machines anymore. Personal computer makers are beginning to jump into the market, chopping prices in what was once an elite technology niche.

The most recent vendor to tip its hat is AST Research, Inc., the fast growing Irvine, Calif.-based PC maker.

AST plans to join AT&T's Starserver E line and Compaq Computer Corp.'s Systempro, among others, with a multiprocessor machine scheduled to ship in the first quarter of 1992,

said Michael Krieger, AST's senior manager of advanced systems. He said AST's box is still in the lab, but it is marketing it as an upgradable, four-processor symmetric multiprocessor with 16 slots and a 64-bit Extended Industry Standard Architecture bus. Slated to ship at the end of first-quarter 1992, the product will offer as much as 8G bytes of storage in the cabinet alone. Krieger said he expects pricing to range from \$20,000 to more than \$100,000.

"It's a traditional supermini," Krieger said. He added that AST is "actively recruiting" software value-added resellers that sell into IBM Application Sys-

tem/400 or Digital Equipment Corp. VAX minicomputer markets to add the coming AST product to their offerings.

AST's new box will also have the hooks for a 128-bit bus architecture built into it for upgrades.

Ahead of schedule

Everex Systems, Inc. is also readying enhancements to its multiprocessor before the product even ships. Sources close to Everex said it will make its Step MP, which ships this month, fault tolerant and antiviral at the hardware level, aiming for a first-quarter 1992 ship date.

An Everex spokesman said only that discussions of such a

product were under way.

While the PC-based multiprocessing market is hot, the higher performance SMP technology is still in the future. Only the Starserver offers true SMP, where each microprocessor added brings a 100% boost in performance.

Still, at least one user finds the five-figure pricing of the PC-based machines attractive compared with the minicomputer option.

"I would like to do things a lot faster and a lot cheaper than I can do them on the mainframe, but I'm technologically limited [because] PC databases are very limited in what they can do," said

Stephen Anderson, information systems architect for the state of Washington's Department of Social and Health Services in Olympia. "If I want to downsize mainframe applications, I can't do it with a uniprocessor."

A lack of software remains a major obstacle to multiprocessing. While The Santa Cruz Operation offers MPX, a multiprocessing version of Unix, even that product will not allow SMP until next year.

Below the mainframe level, virtually no operating systems take advantage of more than one processor, although Microsoft Corp. promises that its New Technology operating system, due out in 1993, will multiprocess, and Banyan Systems, Inc. is developing a multiprocessing operating system.

Open systems

FROM PAGE 1

that Atlas will support other distributed computing environments in addition to DCE and will also bundle in transaction processing, management and other capabilities (see story page 97). Unix International also announced the technologies it has selected to make up Atlas.

The OSF announced the technologies it will integrate into its Distributed Management Environment (DME). The core of DME will be Hewlett-Packard Co.'s Openview — hailed by many as today's most "open" enterprise network management system — running on top of IBM's object-oriented server data engine and Tivoli Systems, Inc.'s Wizdom object manager framework. Wizdom was also selected by Unix International.

Middleware layers

Distributed computing and management environments such as DCE, DME and Atlas are "middleware" that sit between a computer's operating system and applications (see illustration). Middleware developed for a wide variety of incompatible computers serves as the layer on which interoperable, portable applications can be written and run, creating a plug-and-play computing, networking and management environment.

The DME, according to a consultant who served on the DME evaluation team, "is the first multivendor management system with the potential to become an industry standard."

This is because management applications can be developed just once to an open platform "that has the major systems vendors behind it," observed Dave Passmore, a partner at Ernst & Young in Fairfax, Va.

OSF business area manager Jonathan Gossels said he expects DME code to be available near the end of 1992.

"Availability within the next 12 to 18 months is reasonable for us," said John Loo, manager of the systems architecture group at Fluor Daniel, Inc., an engineering and construction firm in Irvine, Calif. "My personal feeling is that if Unix is to make inroads into the business environment, one consistent operating system-independent application interface has to emerge."

The OSF also announced that it is now taking orders for its integrated DCE code. The OSF's DCE is comprised of multiple vendors' networking technologies and services.

Several OSF members, in-

cluding Digital Equipment Corp., Groupe Bull, HP, IBM and Stratus Computer, Inc., announced last week that they will have DCE developers' tool kits and applications ready for the user community starting as early as January 1992.

Fifty vendors to date have announced support for DCE; 20 have pledged to support Unix International's Atlas.

Users said last week's developments have made them more serious about considering the notion of an integrated distributed computing environment in their long-range plans.

"Strategically, we must start factoring DCE into our plans be-

cause it is now clear that it's really going to be there," said Bruce Almich, technical manager of data communications at the U.S. Environmental Protection Agency's information services branch in Research Triangle Park, N.C. "A lot of federal managers believe that just implementing Unix is the key to portability. But since there are many Unix versions, we have to come around to considering network 'glue' like this."

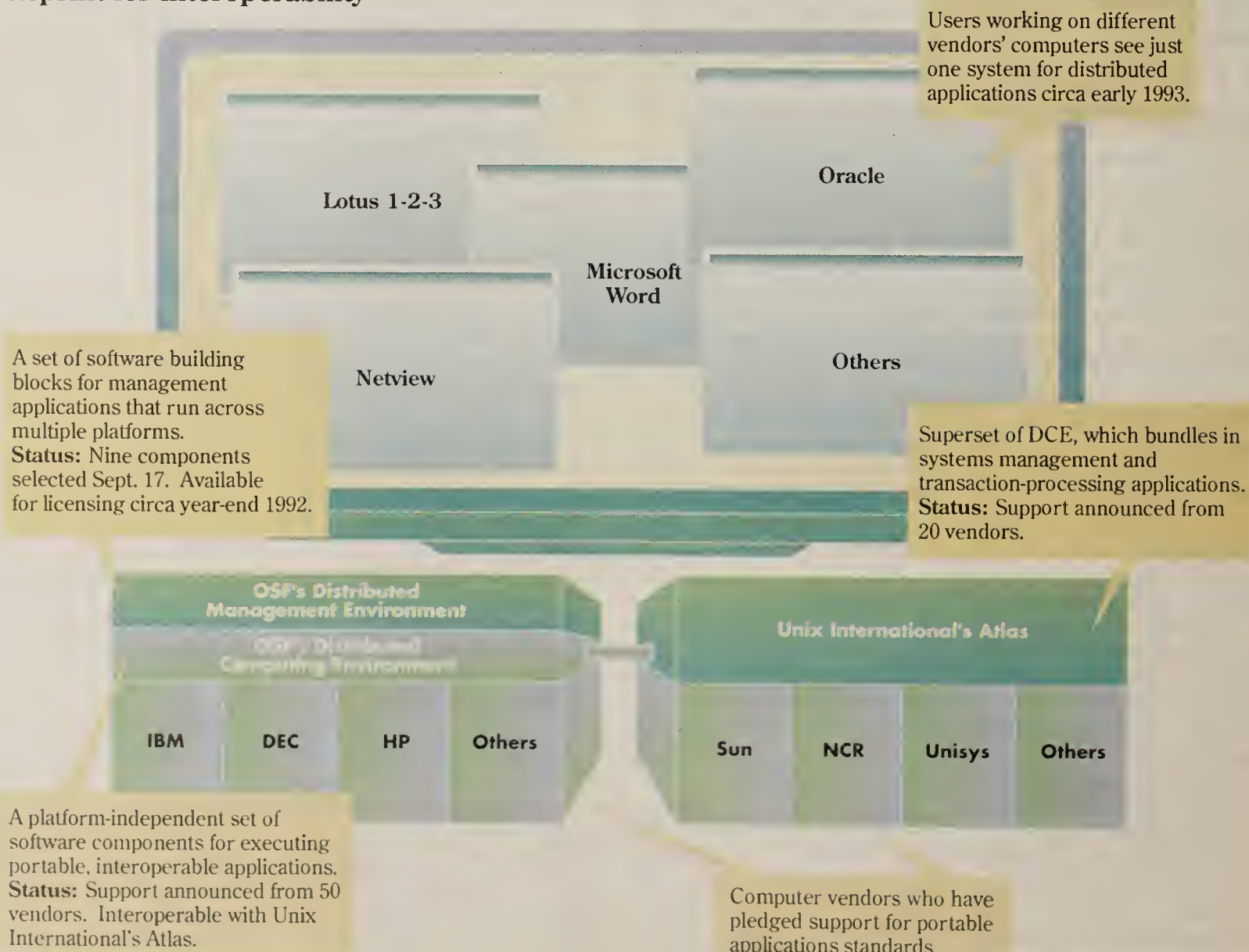
Neville Pereira, supervisor of the integrated computing environment at electric utility Ontario Hydro Research Division in Toronto, said the announcements mean that his organiza-

tion may have to rethink a distributed database application it is currently rolling out over corporatewide personal computers.

"We will probably get a statement of direction from our vendors in relation to this announcement," he said. Support of DCE or Atlas "would definitely fall into the desirability category, and we'll be making hardware and software decisions over the next few months," Pereira said.

The existing distributed computing environments of vendors committed to the OSF will become supersets of DCE — they will have all components of DCE plus vendor-added options and will be manageable by DME.

Blueprint for interoperability



CW Chart: Michael Siggins

Open systems brawl leaves users cold

BY JOHANNA AMBROSIO
CW STAFF

BOSTON — While Unix International and the Open Software Foundation (OSF) are slugging it out for open systems dominance, the fight rates pretty low on the relevance scale in the eyes of some users.

"They don't affect decision making today," said Chip Steinmetz, vice president of American Airlines Decisions Technologies in Dallas/Fort Worth. "We're trying to make money as an airline, and so we're concentrating on tactical decisions about products that are available and that work."

He said, however, that "down the road there's a real strategic benefit. If either organization can help us implement distributed computing in a cost-effective way, it will be worthwhile."

John Ozsvath, department director for business systems at McDonald's Corp. in Oak Brook, Ill., said, "We haven't selected either camp. We're still working out migration strategies from an IBM mainframe environment to an open systems one. There are so many, many issues." He added that "in the long term, what

[Unix International] and OSF are doing impacts us. Ultimately, we'll catch up."

OSF President David Tory disagreed with the perception that there is a low level of user interest in what the OSF is doing. He said that about 50 of the OSF's 300 members are from Fortune 1,000 firms. "And we're talking to about 50 more." Unix International has 245 members, 25 of which are users.

Choosing sides

Both sides have their corporate supporters. A 10-member user group recently selected a slew of technologies — OSF's dominant among them — that they would like vendors to implement. Members include Du Pont Co., American Airlines, General Motors Corp., Eastman Kodak Co., McDonnell Douglas Corp., Motorola, Inc., 3M Co., Northrop Corp. and Unilever United States, Inc.

Part of the problem, observers said, is that the roles of both Unix International and the OSF have become clear only recently, three years after the organizations were founded. And neither group's complete open systems environments will be fully deliv-

ered until two years from now.

Both organizations were founded because of a dispute over who would control the fate of the Unix operating system.

Today, however, some vendors, including Digital Equipment Corp. and Sun Microsystems, Inc., belong to several consortia.

Because of the changing marketplace, observers said, it has taken a while for Unix International and the OSF to sort out their roles.

Where we stand

Statements of support for open systems initiatives

| Vendor | Open Software Foundation ¹ | | | Unix International ² | |
|----------------------------|---------------------------------------|-------|---------|---------------------------------|-------|
| | Motif | OSF/1 | DME DCE | System V.4 | Atlas |
| IBM | ✓ | ✓ | ✓ | | |
| Hewlett-Packard Co. | ✓ | ✓ | ✓ | | |
| Digital Equipment Corp. | ✓ | ✓ | ✓ | | |
| NCR/AT&T | ✓ | | ✓ | ✓ | ✓ |
| Sun Microsystems, Inc. | | | | ✓ | ✓ |
| Unisys Corp. | ✓ | | | ✓ | ✓ |
| Information Builders, Inc. | | | | ✓ | |

¹ Only one vendor, DEC, is shipping OSF-based products.

² Will be interoperable with OSF's DCE standard

CW Chart: Michael Siggins

Both groups are attempting to provide complete open systems environments, with different pieces and components that are at least somewhat compatible. The OSF/1 operating system and the Unix International-backed Unix System V Release 4 incorporate the Posix standards,

and Unix International is using the OSF's Distributed Computing Environment as one piece of its Atlas framework.

"The environments are very similar," said Roy Schulte, an analyst at Gartner Group, Inc. in Stamford, Conn. "Users will not allow there to be too much divergence between the two."

Jim Johnson, chairman of the Standish Group International, Inc. in Hyannis, Mass., said there will likely be even more similarity between the two over

such vendor. Even though Sun does not support the OSF's Motif interface, for example, users can obtain a Sun-compatible version of Motif from third-party suppliers. Software houses will continue to fill in the gaps between both sides, Johnson said.

Bumps in the road

Still, the two organizations do have some differences. Unix International "has done a better job of defining near-term solutions," said Tom Willmott, vice president of Aberdeen Group, a Boston-based consultancy.

Another difference is that while Unix International's specifications are based on System V Release 4, Tory said that its technologies are applicable to many different operating system environments, not just to Unix.

Most observers gave the long-term nod to OSF because of the industry clout of its three major backers: IBM, Hewlett-Packard Co. and DEC. "Right now, Unix International has the installed base," said Norman Weizner, senior consultant at Arthur D. Little, Inc. in Cambridge, Mass. But "my bet is that we will move toward OSF."

David Sandel, vice president of marketing at Unix International in Parsippany, N.J., responded, "Our members expect to serve the market, be successful and make money. You don't proceed with something unless you believe that to be true, and we do."

OS/2 2.0 — or most of it — to ship in December

BY PATRICIA KEEFE
CW STAFF

It's beginning to look a lot like Christmas for the OS/2 camp. Users can expect year-end delivery of Release 2.0, while IBM hopes to move OS/2 into the mainstream through a mix of aggressive pricing, broadened distribution and bolstered applications support.

However, sources said it is unlikely that OS/2 2.0 will ship with all the features promised at an April briefing. In particular, it is expected to take IBM until early 1992, in Release 2.1, to enable users to run Windows under OS/2 without using the DOS compatibility box.

The driver that is required to do this is supposed to ship in the next beta version of Release 2.0, during the next two weeks. If it is not there, users and analysts said not to expect that functionality in 1991.

"[Even without that driver,] OS/2 is very stable, and it gives you more free memory than DOS does, so it is not a totally unviable option. It's just not what people really want," said David Cearley, vice president of technology at Revelation Technologies, Inc.

At minimum, Release 2.0 will allow Windows programs to run under Windows 3.0's Standard Mode in the DOS compatibility box.

Niagra Mohawk Power Corp.'s Frank Mantha is a satisfied OS/2 1.3 user who is "very eager" to be able to run his Windows applications directly under OS/2 2.0. He said IBM promised attendees at an executive briefing in April that OS/2 2.0 would ship in the third quarter. Noting that the quarter is almost over, he said, "I feel like I'm all dressed up with no place to go."

Sources said IBM will kick off Comdex/Fall '91 by devoting Oct. 21 to a splashy OS/2 announcement. IBM officials are expected to announce a ship date for OS/2. Delivery is expected to be in December. Initially, IBM had privately planned an October/November delivery.

The OS/2 special interest group of the Boston Computer Society wanted IBM to demonstrate OS/2 2.0 but only if it would be shipping, group coordinator Bill Langlais said. IBM told the group the product would not be available then, he said. A user at a large utility said IBM told him last week that OS/2 2.0 will ship by Dec. 15.

Aggressive pricing

IBM is also expected to price Release 2.0 between \$99 and \$150 in an effort to pare the price differential between OS/2 and a Windows platform. "You can expect very aggressive pricing from IBM," said Frank Dzubeck, a consultant at Communication Network Architects in Washington, D.C.

In April, IBM said Release 2.0 would ship for less than \$200. Today, users can buy OS/2 1.3 for \$99 with a free upgrade to 2.0. In comparison, the combined cost of Microsoft Corp.'s Windows 3.0 and the DOS 5.0 upgrade is roughly \$150.

IBM executives have conceded that spotty availability has hindered efforts to move OS/2 into mainstream computing [CW, Aug. 26]. Last week, a frustrated user called *Computer-*

world and complained that he could not find a copy of OS/2 anywhere in Rhode Island — not even from IBM.

IBM is reportedly gearing up to flood a wider range of channels with OS/2 2.0. One source hinted that close to 3 million copies are being readied. "You'll see OS/2 in channels where you don't normally see a lot of IBM products," the source added.

For example, users will now be able to buy OS/2 via mail order and catalog sales, a source close to IBM said. In an interview last month, Lee Reisswig, assistant general manager of programming at IBM Personal Systems, acknowledged that IBM needed to exploit a broader range of distribution options, specifically citing mail order as one such option.

"Anywhere you see DOS, you should be able to find OS/2 next to it," said Sheldon Laube, technology director at Price Waterhouse. Catalog sales definitely will bring in revenue and visibility, added Jeffrey Tarter, editor of the newsletter "Softletter." Programmers, along with accounting and law firms, are a few examples of market segments that buy heavily through catalogs, he said. IBM is also expected to update its catalog of OS/2 applications, as well as showcase a number of OS/2 products.

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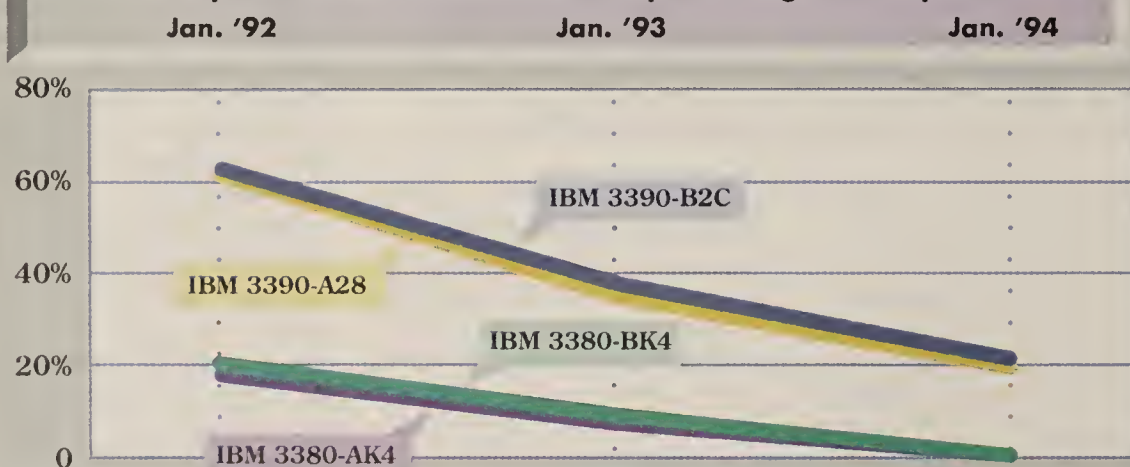
TRENDS

IBM
STORAGE

IBM's recent announcement of its 3390 Model 3 high-end disk drive is just one reason mainframe storage values are expected to decline

| | Announced | List price | Projected retail residual value | | |
|-------------------------|------------|------------|---------------------------------|-----------|----------|
| | | | Jan. '92 | Jan. '93 | Jan. '94 |
| 3390-A28 15.1G bytes | Nov. 1989 | \$212,650 | \$131,843 | \$72,301 | \$40,404 |
| 3390-B2C 22.7G bytes | Nov. 1989 | \$279,850 | \$176,306 | \$100,746 | \$58,769 |
| 3380-AK4 7.5G bytes | Sept. 1987 | \$143,900 | \$24,463 | \$12,951 | \$4,317 |
| 3380-BK4 7.5G bytes | Sept. 1987 | \$118,020 | \$23,604 | \$11,802 | \$3,541 |

Projected used retail value as a percentage of list price



Source: Technology Investment Strategies Corp., Framingham, Mass.

CW Chart: Janell Genovese

NEXT WEEK

The transcontinental shipping business is highly information-intensive, but American President Cos. Chairman and CEO W.B. Seaton says IS can no longer be viewed as a competitive differentiator. Seaton discusses information strategy at the Pacific Ocean's largest U.S.-based shipping firm in The CEO View in Manager's Journal.



Cindy Charles

What does it take to be the most effective user of information systems in your industry? Find the answer in the fourth annual *Computerworld Premier 100*. The 1991 edition again features one of the most widely recognized rankings of top IS organizations. Find out who's on top, and compare your strategies to those of the leading practitioners.

INSIDE LINES

The best defense is a good offense

Information security and risk management staffers at Metropolitan Life pulled out all the stops in a campaign to alert PC users to the danger of infection by viruses with a Friday the 13th trigger. In case you missed it, the 13th fell on a Friday this month. The campaign worked exceedingly well, reported Fran Smyth, assistant vice president of IS risk management. Only two out of some 18,000 PCs at the insurance company were tagged by the Friday the 13th virus. But watch out. The 13th falls on Friday again in December.

System Semipro?

Although Compaq is skipping Comdex/Fall '91, it intends to make its presence felt at Networld Oct. 14. Sources close to Compaq say the firm will shore up the low end of its multiprocessor line with two tower-type file servers. Analysts say they'll provide more expansion room than a Deskpro but less than a Systempro. As for reports of color notebooks and/or transportables based on the I486SX/20 coming down before Networld or on Oct. 7, don't hold your breath. The products won't be there, sources at Compaq said. What looks to be next in line is a late October announcement of an I486SX/20-based monochrome-screen notebook with a nickel-hydrate battery.

DG has a little something for everyone

Data General will be hitting the product trail again in mid-October with the announcement of Aviion-related technology. Sources said it is a good bet DG will unveil an Aviion box using the newer Motorola 88110 chip set technology. DG watchers also said proprietary MV customers can expect new product rollouts within the next three to six months.

Fear strikes out

Bowling ball maker Brunswick threw a strike at its MVS mainframe in Skokie, Ill., last week. The company switched to 300 Northgate PCs and Northgate file servers running Novell Netware. Even the CEO came down to say good-bye to the big iron and hello to the new network.

Arrive Stoned

Cypress Semiconductor last week inadvertently sent some customers 5¼-in. floppy disks infected with the Stoned virus. The disk contained a systems programming utility called Maxprog. Recipients were asked to destroy the disk and accept a replacement. The company said the likelihood of infection is remote.

We've got this on tape

IBM is preparing to introduce its own automated tape library within 12 months, according to Ray S. AbuZayyad, head of IBM's Storage Systems Products Division in San Jose, Calif. "We are very committed to the automation of our tape-cartridge product offering," he said. That market is currently dominated by Storage Tek and is a big hit with users who run large data centers. In recent years, IBM tried to resell automated tape libraries made by two different German vendors but failed.

Pushing the Netware envelope

What is neither beta nor product but can be bought by a select group of users? Give up? It's the 1,000-user version of Novell's Netware. According to several network dealers, the software — which quadruples the maximum number of users that can be assigned to a single Netware server — can be bought, although Novell refuses to acknowledge its existence. Dealers reportedly will interview candidates who request copies. Why is Novell mum? The 1,000-user Netware apparently runs with a minimum of utilities and could potentially crumble like a house of cards if configured carelessly.

We've never minded companies wasting their money on the silly trinkets they send us trying to publicize their products, but we did object when Identitech in Melbourne, Fla., attached a \$5 bill to a press kit last week. You can buy us dinner and take us dancing, but paying for it is a bit much. News tips and other tasteful items are always welcomed by Executive Editor Paul Gillin at (800) 343-6474. Or fax him at (508) 875-8931 or Compuserve him at 76537,2413.

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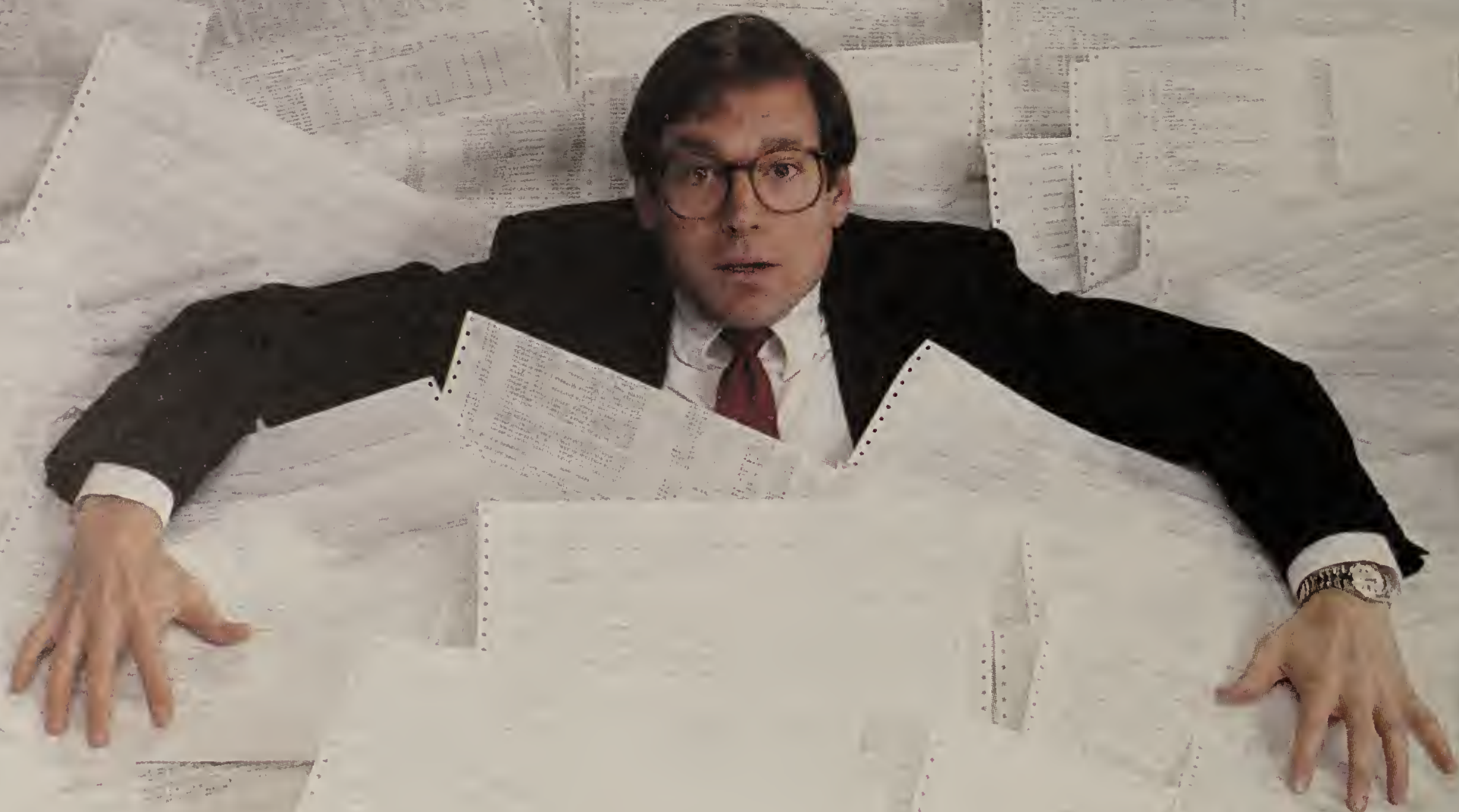
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